

DSR-11

RMT-DS11

SERVICE MANUAL

Self Diagnosis
Supported model

Ver 1.3 2004. 10



*US Model
Canadian Model
AEP Model
UK Model
Australian Model
New Zealand Model*

R MECHANISM

SPECIFICATIONS

System

Recording format DVCAM/DV (SP) format, rotating 2-head helical scan, digital component recording

Video signal EIA STANDARD, NTSC color system
CCIR STANDARD, PAL colour system

Video

Quantification 8-bit

Standardization

frequency

NTSC:
13.5 MHz (4:1:1 Component)
PAL:
13.5 MHz (4:2:0 Component)

Audio

Quantification 12-bit (non-linear) or 16-bit (linear)

Standardization

frequency

32 kHz (12-bit recording) or
48 kHz (16-bit recording)

Usable cassettes Standard-DVCAM cassettes and Mini-DVCAM cassettes

Recording time

Standard cassette
DVCAM:
184 minutes (PDV184)
180 minutes (DV270)
DV: 270 minutes (PDV184/
DV270)
Mini cassette
DVCAM: 40 minutes (PDVM40/
DVM60)
DV: 60 minutes (PDVM40/
DVM60)
(We recommend that you use the
DVCAM cassettes.)

Clock

Quartz locked

Power back-up

Back-up duration: up to one month
(after a 10-hour charge)

Inputs and outputs

Video input

Phono jack
Input signal: 1 Vp-p
(75 ohms unbalanced)

Video output

Phono jack
Output signal: 1 Vp-p
(75 ohms unbalanced)

S video input

Mini DIN 4-pin
Luminance signal: 1 Vp-p
(75 ohms unbalanced)

S video output

Mini DIN 4-pin
Luminance signal: 1 Vp-p
(75 ohms unbalanced)

Audio input

Phono jack (L, R)
Input level: 2 Vrms (full bit)
Input impedance: more than
47 kohms

Audio output

Phono jack (L, R)
Output level: 2 Vrms (full bit)
Output impedance: less than
10 kohms

Control S input

Minijack

LANC input/output

Stereo mini-mini jack

DV input/output

4-pin jack

General

Power consumption

15 W (during playback)

Peak inrush current

Hot switching inrush current,
measured in accordance with
European standard EN55103-1:
6 A (230V)

Operating temperature

5 °C to 40 °C (41 °F to 104 °F)

Storage temperature

-20 °C to +60 °C (-4 °F to +140 °F)

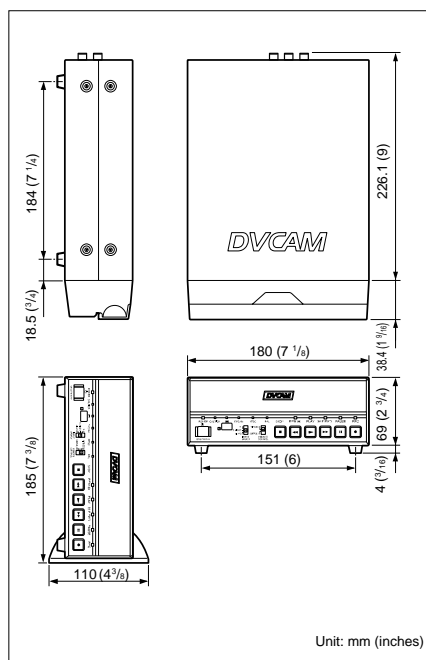
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DVCAM™

DIGITAL VIDEO CASSETTE RECORDER

SONY®

Dimensions Approx. 180 × 73 × 265 mm
 (7 1/8 × 2 7/8 × 10 1/2 inches)
 (w/h/d, including projecting parts
 and controls)



Mass Approx. 2.7 kg (5 lb 15 oz)
 Supplied accessories

Remote Commander (1)
 Size AA (R6) batteries (2)
 AC power adaptor (1)
 Power cord (1)
 Rack (1)
 Cleaning cassette (1)
 Operating instructions

Design and specifications are subject to change
 without notice.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK \triangle OR DOTTED LINE WITH MARK \triangle ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE \triangle SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
 - Keep the temperature of the soldering iron around 270 °C during repairing.
 - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
 - Be careful not to apply force on the conductor when soldering or unsoldering.

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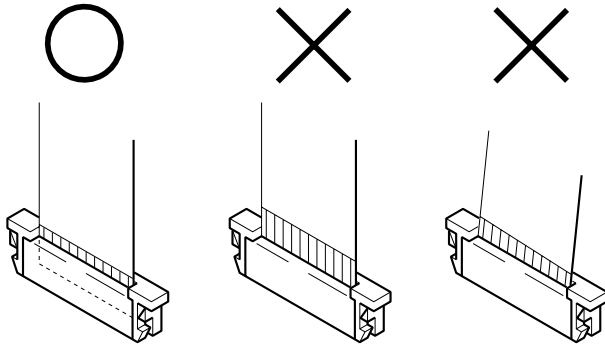
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SERVICE NOTE

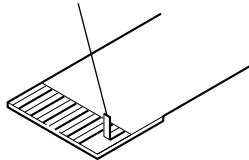
1. NOTE FOR REPAIR

Make sure that the flat cable and flexible board are not cracked or bent at the terminal.

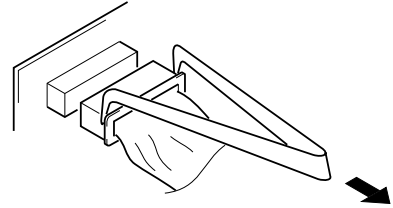
Do not insert the cable insufficiently nor crookedly.



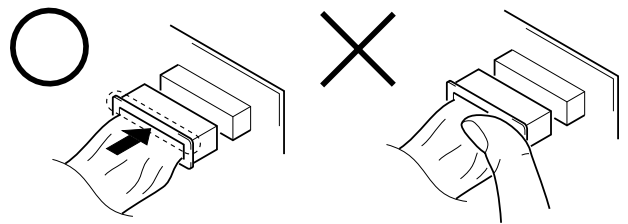
Cut and remove the part of gilt which comes off at the point.
(Be careful or some pieces of gilt may be left inside)



When remove a connector, don't pull at wire of connector.
It is possible that a wire is snapped.



When installing a connector, don't press down at wire of connector.
It is possible that a wire is snapped.

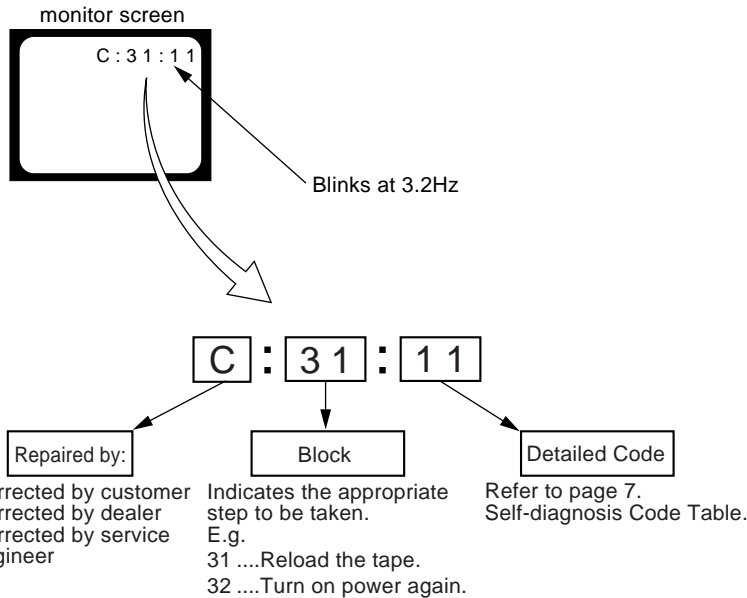


SELF-DIAGNOSIS FUNCTION

1. Self-diagnosis Function

When problems occur while the unit is operating, the self-diagnosis function starts working, and displays on the monitor screen what to do. This function consists of two display; self-diagnosis display and service mode display.

Details of the self-diagnosis functions are provided in the Instruction manual.



2. Self-diagnosis Display

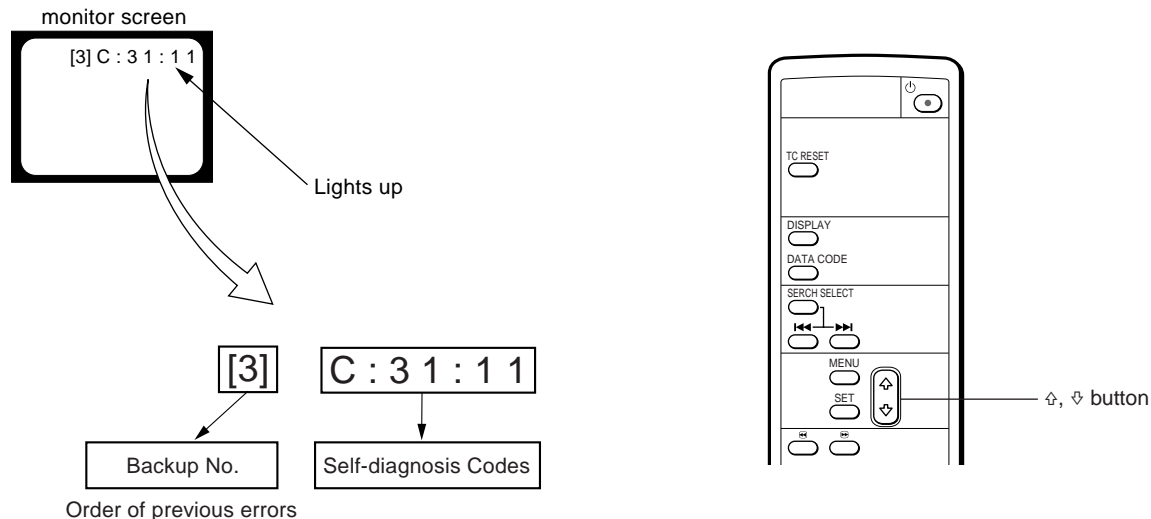
When problems occur while the unit is operating, the time code of the monitor screen shows a 4-digit display consisting of an alphabet and numbers, which blinks at 3.2 Hz. This 5-character display indicates the “repaired by:”, “block” in which the problem occurred, and “detailed code” of the problem.

3. Service Mode Display

The service mode display shows up to six self-diagnosis codes shown in the past.

3-1. Display Method

With the unit set in STANDBY mode, while pressing the “STOP” button, press the “ON/STANDBY” button, and continue pressing the “STOP” button for 5 seconds continuously. The service mode will be displayed, and the time code will show the backup No. and the 5-character self-diagnosis codes.



3-2. Switching of Backup No.

By press the “UP”, “DOWN” button of supplied remote commander (RMT-DS11), past self-diagnosis codes will be shown in order. The backup No. in the [] indicates the order in which the problem occurred. (If the number of problems which occurred is less than 6, only the number of problems which occurred will be shown.)

- | | |
|----------------------------|------------------------------|
| [1] : Occurred first time | [4] : Occurred fourth time |
| [2] : Occurred second time | [5] : Occurred fifth time |
| [3] : Occurred third time | [6] : Occurred the last time |

3-3. End of Display

Turning OFF the power supply will end the service mode display.

Note: The “self-diagnosis display” data will be backed up by the coin-type lithium battery (HD-024 board BT701). When this coin-type lithium battery is disconnected, the “self-diagnosis display” data will be lost by initialization.

4. Self-diagnosis Code Table

Self-diagnosis Code				Symptom/State	Correction
Repaired by:	Block Function	Detailed Code			
C	2 1	0 0		Condensation.	Remove the cassette, and insert it again after one hour.
C	2 2	0 0		Video head is dirty.	Clean with the optional cleaning cassette.
C	3 1	1 0		LOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3 1	1 1		UNLOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3 1	2 2		T reel fault.	Load the tape again, and perform operations from the beginning.
C	3 1	2 3		S reel fault.	Load the tape again, and perform operations from the beginning.
C	3 1	3 0		FG fault when starting capstan.	Load the tape again, and perform operations from the beginning.
C	3 1	4 0		FG fault when starting drum.	Load the tape again, and perform operations from the beginning.
C	3 1	4 2		FG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3 2	1 0		LOAD direction loading motor time-out.	Remove the power cable, connect, and perform operations from the beginning.
C	3 2	1 1		UNLOAD direction loading motor time-out.	Remove the power cable, connect, and perform operations from the beginning.
C	3 2	2 2		T reel fault.	Remove the power cable, connect, and perform operations from the beginning.
C	3 2	2 3		S reel fault.	Remove the power cable, connect, and perform operations from the beginning.
C	3 2	3 0		FG fault when starting capstan.	Remove the power cable, connect, and perform operations from the beginning.
C	3 2	4 0		FG fault when starting drum.	Remove the power cable, connect, and perform operations from the beginning.
C	3 2	4 2		FG fault during normal drum operations.	Remove the power cable, connect, and perform operations from the beginning.

SECTION 1 GENERAL

This section is extracted from DSR-11 instruction manual.

Chapter 1

Overview

Features

The DSR-11 is a 1/2-inch digital video cassette recorder that uses the DVCAM™ digital recording format. This system achieves stable, superb picture quality by digitally processing video signals that are separated into color difference signals and luminance signals (component video). With a compact, lightweight and space-saving case, the unit can be installed vertically and is equipped with an analog interface as well as a digital interface enabling connection to a digital device such as a computer.

The DSR-11's main features are described below.

DVCAM Format

DVCAM is based on the consumer DV format, which uses the 4:1:1 component digital format (NTSC) or the 4:2:0 format (PAL), and provides a 1/2-inch digital recording format for professional use.

High picture quality, high stability

Video signals are separated into color difference signals and luminance signals, which are encoded and compressed to one-fifth size before being recorded to ensure stable and superb picture quality. Because the recording is digital, multi-generation digital dubbing can be performed with virtually no deterioration of quality.

Wide track pitch

The recording track pitch is 15 µm, fully 50 percent wider than the DV format's 10-µm track pitch. Thanks to this feature, the DVCAM format sufficiently meets the reliability and precision requirements of professional editing.

High-quality PCM digital audio

PCM recording makes for a wide dynamic range and a high signal-to-noise ratio, thereby enhancing sound quality. There are two recording modes: 2-channel mode (48-kHz sampling and 16-bit linear code), which offers sound quality equivalent to the DAT (Digital Audio Tape) format, or 4-channel mode (32-kHz sampling and 12-bit nonlinear code).

DV format compatibility

A DV cassette recorded on a DV-format VCR can be played back on the unit (SP mode only). The unit can also record in DV format (SP mode only). (Recording/playing back an image in LP mode is not available.)

NTSC/PAL systems compatible

The unit is compatible with NTSC and PAL systems. When inputting the signals to the DV IN/OUT connector or playing back a tape, the color system of signals is detected automatically. The color system select switch on the unit allows input of analog video signals in either color system. This compatibility allows you to record (download) or play back (upload) both NTSC and PAL formatted signals with your VCR, computer, or other equipment. However, the unit cannot convert the color system of the signals.

Choice of two cassette sizes

The unit can use both standard-size and mini-size DVCAM or DV cassettes.

- According to cassette size, the position of the reel drive plate changes automatically.
- The maximum recording/playback times are 184 minutes for standard size cassettes and 40 minutes for mini-size cassettes (DVCAM format).

Remote control

The unit can be operated by remote control from a CONTROL-S system remote control unit, the DSRM-20 (not supplied).

High-speed search function

When you use an editing controller or the optional remote control unit (DSRM-20), the unit has a picture search function that allows you to view color picture at playback speeds up to 14 times (NTSC) or up to 17 times (PAL) normal speed in forward and reverse directions. You can also search frame-by-frame in jog mode. You can also hear playback audio.

Digital slow playback

The unit has a frame memory function that allows smooth, slow playback. This is available only at $\pm 1/2$ -time speed and $\pm 1/4$ -time speed.

Jog audio function

If you use the optional remote control unit DSRM-20, audio can be monitored at various playback speeds when in jog mode.

Other Features

Compact and can be installed vertically

The unit is compact and can be installed vertically. With non-linear editing system, you can save space by installing it vertically beside your computer.

Menu system for functionality and operation settings

The unit provides a menu system to make its various functions easier to use and set up.

Superimposition function

Time code, operation mode indications, menus, error messages, and other text data can be superimposed and output in analog video signals.

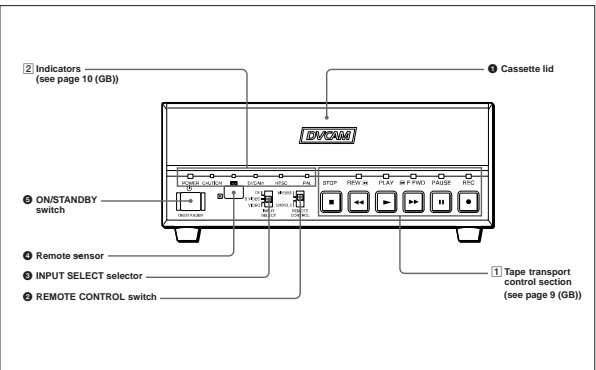
Easy maintenance functions

- Self-diagnostics/alarm functions:** The system automatically detects an invalid operation, an invalid connection or a malfunction, and outputs a description, a cause and a recovery method as a message superimposed on analog video signals.
- Digital hours meter:** A digital hours meter counts four types of time data—operating time, drum rotation time, tape running time, and tape threading/unthreading. The digital hours data is displayed in the menu.

[DVCAM], [DV], [DV], and [DV] are trademarks of Sony Corporation.

Location and Function of Parts

Front Panel



- Cassette lid**
To insert/eject a cassette, open the lid.
For details of usable cassettes, see "Notes on Video Cassettes" on page 15 (GB).
- REMOTE CONTROL switch**
Selects whether the unit is operated from the Remote Commander or from an optional remote control unit.
WIRELESS: The unit is operated from the Remote Commander.
CONTROL S: The unit is operated from a remote control unit (the DSRM-20, not supplied), connected to the CONTROL S jack on the rear panel.

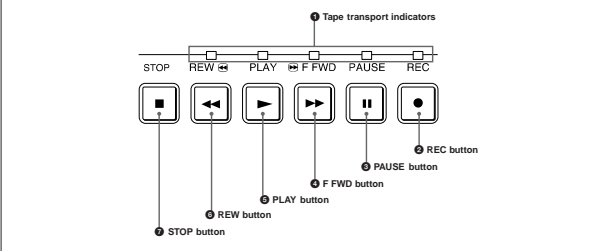
Note
You can operate this unit from its front panel regardless of this switch setting.

- INPUT SELECT selector**
You can select DV, S VIDEO, or VIDEO to input the signals.
DV: Signal input from the DV IN/OUT connector
S VIDEO: Signal input from the S VIDEO connector on INPUT jacks
VIDEO: Signal input from the VIDEO jack on INPUT jacks

Note
Do not change the selector setting during recording. Otherwise, noise is output to the picture and sound and that portion will not be recorded properly.

- Remote sensor**
- ON/STANDBY switch**

1 Tape transport control section



- Tape transport indicators**
- REC (record) button**
When you press the PLAY button while holding down this button, the indicator lights and recording begins. To set the unit to recording pause mode, press the PAUSE and PLAY buttons while holding down this button. If you press only this button when the unit is in the stop mode and the DV IN TC on the OTHERS menu is set to EXTERNAL, the REC indicator lights and you can also check the EE signals for time code. After checking them, press the STOP button.
For details on the OTHERS menu, see "OTHERS menu" on page 49 (GB).
- F FWD (fast forward) button**
When you press this button, the indicator lights and the tape is fast forwarded. During fast forward, the picture does not appear on the monitor (you can see the picture as it is seen in the EE mode¹⁾ during fast forward). To locate a scene while monitoring the picture, keep pressing this button during fast forward, playback or in playback pause mode (picture search). You can change the tape transport mode in FF/REW SPD on the VTR SET menu.
For details on the VTR SET menu, see "VTR SET menu" on page 43 (GB).
- PLAY button**
When you press this button, the indicator lights and playback begins. If you press this button while holding down the REW button during stop, the tape is rewound to its beginning and starts playing automatically (during rewind, the REW indicator lights and the PLAY indicator flashes).

1) EE mode
"EE" stands for "Electric to Electric". In this EE mode, the video and audio signals that are input to the VCR's recording circuitry do not pass through any magnetic

conversion circuits but instead are output via electric circuits only. This mode is used to check the input signals and adjust input levels. The pictures output in EE mode are referred to as EE pictures.

Location and Function of Parts

Notes

- When the unit is playing back a part of the tape where the recording format has been changed between the DVCAM format and the DV format, the picture and sound may be distorted.
- The unit cannot play back a tape recorded in the LP mode of the consumer DV format.

REW (rewind) button

When you press this button, the indicator lights and the tape starts rewinding. During rewind, the picture does not appear on the monitor (you can see the picture as it is seen in the EE mode during rewind). To locate a scene while monitoring the picture, keep pressing this button during rewind, playback or in playback pause mode (picture search). If you press the PLAY button while holding down this

button during stop, the tape is rewound to its beginning and starts playing automatically (during rewind, the REW indicator lights and the PLAY indicator flashes). You can change the tape transport mode in FF/REW SPD on the VTR SET menu.

For details on the VTR SET menu, see "VTR SET menu" on page 43 (GB).

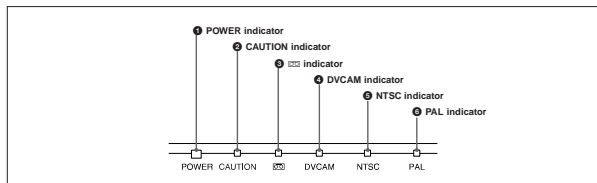
Note

If you set the FF/REW SPD on the VTR SET menu to SHUTTLEMAX, you can display the picture while rewinding the tape.

STOP button

Press this button to stop the current tape transport operation.

2 Indicators



1 POWER indicator

Lights in green when the power of this unit is on and lights in red when the unit is in the standby mode.

2 CAUTION indicator

Flashes when an error occurs. For details on cautions, see "Alarm Messages" on page 51 (GB).

3 (cassette) indicator

Lights when a digital video cassette is loaded. Even if the unit is in the standby mode, the indicator lights as long as the cassette is inside of the unit. While the cassette is being ejected, the indicator flashes.

4 DVCAM indicator

Lights when the unit is playing back a tape recorded in DVCAM format. When the REC MODE on the VTR SET menu is set to DVCAM, this indicator also lights during recording or in the EE mode.

For details on the VTR SET menu, see "VTR SET menu" on page 43 (GB).

5 NTSC indicator

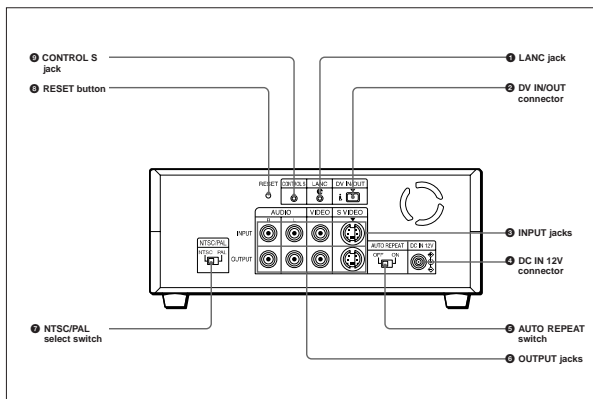
- the unit is in the EE mode, analog video signals are input and the NTSC/PAL select switch is set to NTSC.
- the unit is in the EE mode and NTSC formatted video signals are input from the DV IN/OUT connector.
- a tape that has NTSC formatted video signals is being played back.

6 PAL indicator

- the unit is in the EE mode, analog video signals are input and the NTSC/PAL select switch is set to PAL.
- the unit is in the EE mode and PAL formatted video signals are input from the DV IN/OUT connector.
- a tape that has PAL formatted video signals is being played back.

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Rear Panel



1 LANC jack

Connects to other video devices that have a LANC jack. You can operate the unit from other video devices.

Notes

- You cannot operate the ejection of a cassette from a device connected to the LANC jack.
- The LANC jack on the unit has only LANC-S functions. The unit has no LANC-M functions.

2 DV IN/OUT connector (4-pin)

Used to input/output a digital signal that complies with the i.LINK standard (Recommended cable: VMC-IL4415(A), VMC-IL4615(A)). Use when an external device which you want to connect to the unit has a DV jack. If you connect the unit and the other device using DV jacks, you can minimize deterioration of picture quality during recording, dubbing or capturing still pictures into a personal computer by digital processing. For details, refer to the instruction manual of the equipment you use.

Note

i.LINK and the i.LINK logo are trademarks and indicate that this product is in agreement with IEEE 1394-1995 specifications and their revisions.

3 INPUT jacks

Used to input analog video and audio signals. To connect a VCR equipped with S-video output, use the S VIDEO connector on the unit.

4 DC IN 12V connector

Connects to an AC power outlet using the supplied AC power adaptor and power cord.

5 AUTO REPEAT switch

Used to repeat the playback of all or a part of the tape. For details on the auto repeat function, see "Auto Repeat" on page 32 (GB).

Chapter 1 Overview 11 (GB)

Location and Function of Parts

6 OUTPUT jacks

Used to output analog video and audio signals. To connect a VCR equipped with S-video input, use the S VIDEO connector on the unit.

Notes

- Various text data are superimposed and output from the VIDEO jack or the S VIDEO connector on the OUTPUT jacks. If you want to output video signals without text data, carry out the following operations.
 - Set TITLE DISP and LABEL DISP on the CM SET menu to OFF.
 - Depending on the displayed items, press the MENU, DATA CODE, DISPLAY or SEARCH SELECT button on the Remote Commander to clear the text data on the monitor screen.

For details on text data, see "Displaying data recorded on a tape" on page 25 (GB) and "Displaying various data" on page 26 (GB).

For details on the CM SET menu, see "CM SET menu" on page 46 (GB).

- When the unit is in the EE mode (when the input signal is output as an analog signal), the subcarrier of the color signal is not synchronized with the horizontal sync signal. The color of the picture or the horizontal sync signal may be distorted depending on the type of monitor connected to the unit.

7 NTSC/PAL select switch

Used to switch the color system of signals that will be recorded on the unit when you use analog input. To change the switch setting, turn off the power of the unit first, then use the tip of a ball-point pen or similar tool to slide this switch. Before inputting NTSC or PAL formatted analog video signals, set this switch to appropriate position according to the color system of it.

Notes

- If the color system of the input signals is different from that of the switch setting, both picture and sound will be muted.
- When inputting signals to the DV IN/OUT connector or during playback, this switch setting is invalid. The unit detects the color system of the signals automatically.

- When the switch is set to PAL, the unit works as a PAL model. Therefore the time code generated by the unit while recording in the DVCAM format turns to the non-drop frame mode. Even if an NTSC formatted signal is input from the DV IN/OUT connector, the time code generated by the unit is non-drop frame mode as long as the switch is set to PAL, regardless of the TC FORMAT setting on the OTHERS menu. If you intend to set the unit to generate the time code in the drop frame mode, set the switch to NTSC.

- The color system of the signals output from the unit is the one recorded on the tape being played back. The unit cannot convert the color system of signals of one system into that of the other. (For example: converting NTSC formatted signals into PAL formatted signals is not possible) Therefore, to view or record the signal output from the unit, you need a device compatible with the color system of the signals output from the unit.

- When the color system of playback signals is different from the one last used on the unit, playback picture and sound will be distorted and time code will be discontinuous for a short time at the beginning of the playback.

- If you play back a tape with both NTSC and PAL color system recordings, the following limitations apply.
 - At the point where the recorded signals format changes, the picture may be distorted or the audio noise may be output.
 - The tape transport control buttons may be disabled until the tape running is stabilized.
- Do not change the switch setting during recording.

8 RESET button

Press this button to initialize the internal clock and all menu items. Press this button with the tip of a ball-point pen or similar tool.

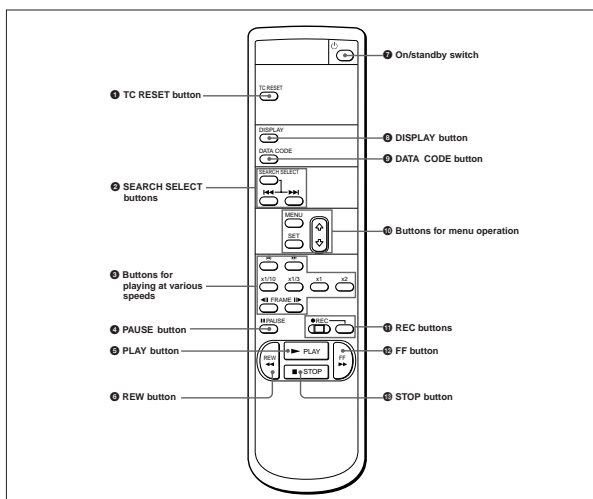
9 CONTROL S jack

Connects to a remote control unit (DSRM-20, not supplied) for controlling this unit.

Note

When using a CONTROL S-device, set the REMOTE CONTROL switch on the front panel to CONTROL S. Otherwise, you cannot operate the unit with CONTROL S-devices.

Supplied Remote Commander



1 TC RESET button

Press this button to reset the time code to 00:00:00:00 during recording or in the recording pause mode.

Note

- When the command mode of a Sony device / remote commander is set to VTR 4;
 - if you press this button while pointing the Remote Commander toward a Sony device other than this unit, the HMS counter on that machine will be reset to zero.
 - if you press a counter reset button on a Sony remote commander while pointing it toward this unit during recording or in the recording pause mode, the time code will be reset to zero.

2 SEARCH SELECT buttons

Press these buttons to search for scenes using the search function. For details on the search function, see "Searching using the search function" on page 29 (GB).

3 Buttons for playing at various speeds

You can play back a tape at normal speed or at a speed other than normal with these buttons. For details, see "Playing at various speeds" on page 28 (GB).

4 PAUSE button

5 PLAY button

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① REW button

② On/standby switch

③ DISPLAY button

Press this button to see indications, such as time code and tape remaining time, on the monitor screen.
For details on displayed data, see "Displaying various data" on page 26 (GB).

④ DATA CODE button

Press this button to see the data codes (recording date/time, camera data) on the monitor screen.
For details on data codes, see "Displaying data recorded on a tape" on page 25 (GB).

⑤ Buttons for menu operation

Press these buttons to operate the menu.

⑥ REC buttons

When you press these buttons at the same time, the REC and PLAY indicators light and recording begins.

⑦ FF button

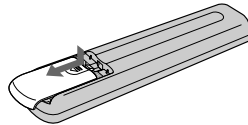
⑧ STOP button

Note

When using the Remote Commander, set the REMOTE CONTROL switch on the front panel to WIRELESS. Otherwise, you cannot operate this unit with the Remote Commander.

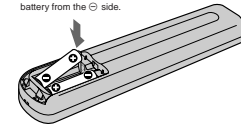
Battery installation

1 Push and slide the lid to open.

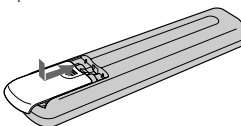


2 Install the two size AA (R6) batteries (supplied) with the correct polarity.

Be sure to install the battery from the ⊖ side.



3 Replace the lid.



Notes on batteries

- Make sure that the battery orientation is correct when inserting batteries.
- Do not mix an old battery with a new one, or mix different types of batteries.
- If you will not use the Remote Commander for a long time, remove the batteries to avoid damage from battery leakage. If batteries have leaked, remove them, wipe the battery compartment dry and replace the batteries with new ones.

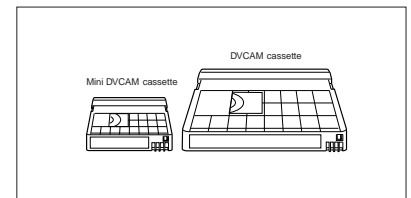
Playback and Recording

Notes on Video Cassettes

Usable cassettes

Use Standard-DVCAM cassettes or Mini-DVCAM cassettes with this unit. The PDV-184 can record programs for 184 minutes (DVCAM format) / 270 minutes (DV format) and the PDVM-40 can record for 40 minutes (DVCAM format) / 60 minutes (DV format).

You can get the highest quality pictures with this digital videocassette recorder using DVCAM cassettes. You may not be able to get as good quality with other cassettes. We recommend using DVCAM cassettes so that you can record your one-time events in the highest quality.



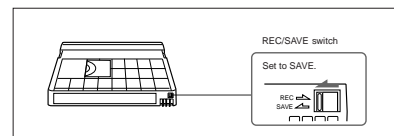
Notes on Video Cassettes

Cassette memory

Cassette memory is an optional feature that is mounted on some Standard DVCAM/DV cassettes and Mini DVCAM/Mini DV cassettes. When you record a program, the recording date and time, and the programs' position on the tape are stored in the cassette memory so that you can quickly locate the program later on. **CM16K** indicates that you can use the cassettes to store up to 16 kbits of data. On this unit, you can use cassettes on which up to 16 kbits of data can be stored.

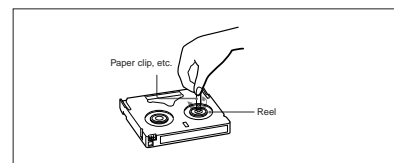
To save a recording

To prevent accidental erasure of a recording, slide the REC/SAVE switch on the cassette so that the red portion becomes visible. To record on a tape, slide the switch so that the red portion is hidden.



Checking the tape for slack

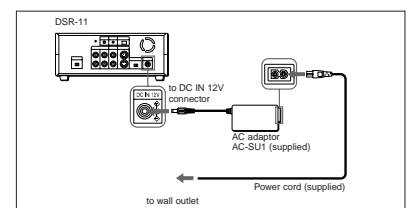
Using a paper clip or a similar object, turn the reel gently in the direction shown by the arrow. If the reel does not move, there is no slack.



Preparations

Power Preparations

Connect the power cord (supplied) to the AC adaptor (AC-SU1, supplied) and connect the AC adaptor to the DC IN 12V connector on the unit. Then, connect the power plug to the wall outlet. When you undo these connections, be sure to disconnect the power cord from the wall outlet first.



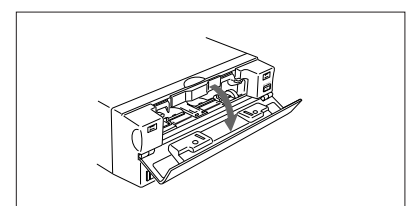
Inserting/Ejecting Cassettes

To insert a cassette

Notes

- Do not insert the cassette forcibly. The unit may be damaged.
- Do not eject/load the cassette in a place subject to light. Make sure to close the cassette lid when using the unit. The internal sensor of the unit may operate incorrectly if too much light finds its way into the unit.

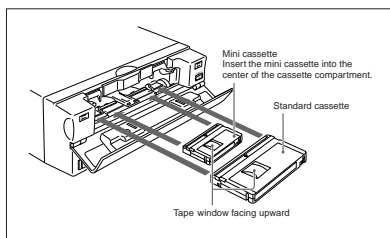
1 With the unit powered on, confirm that the indicator is off, then open the cassette lid.



(Continued)

Preparations

- 2** After checking the tape for slack, hold the cassette so that the tape window is facing upward, then insert it into the unit.

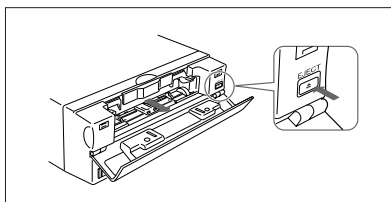


The cassette is automatically loaded into the unit.

- 3** Close the cassette lid.

To eject the cassette

- 1** With the unit powered on, open the cassette lid. Press the EJECT button located at the right side of the cassette compartment.



The cassette is unloaded and ejected.

- 2** Remove the cassette from the unit. Close the cassette lid.

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Notes on Recording/Playback

No compensation for contents of the recording

Contents of the recording cannot be compensated for if recording or playback is not successful due to a malfunction of the unit, video tape, etc.

Copyright precautions

On recording

You cannot record any software having copyright protection signals on this unit. If you start recording protected video and audio signals, a warning appears on the monitor screen and the unit stops recording.

On playback

If you play back a software having copyright protection signals on this unit, you may not be able to copy it onto other equipment.

Limitations caused by the difference in format

The unit can record and play back tapes recorded in DVCAM format. It can also record and play back tapes recorded in DV format (SP mode). However, due to the difference in format, you may not be able to record or edit some tapes affected by recording conditions of the tape.

For details, see "Compatibility of DVCAM and DV Format" on page 55 (GB).

Playback

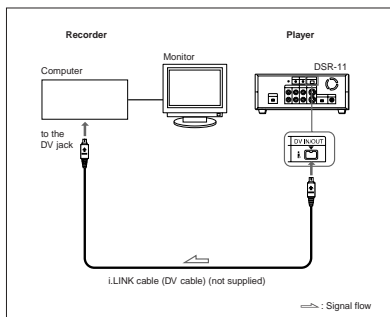
This section describes the necessary connections, settings, and operations to perform playback on this unit. The same settings and operations apply whether you are using the unit for dubbing or as a stand-alone videocassette player.

Connections for Playback

To equipment with a DV jack

Connecting to a computer

The video and audio signals are sent to a computer with virtually no deterioration in quality, enabling high-quality uploading. The signal flow is automatically detected so you do not need to make separate connections for input and output.



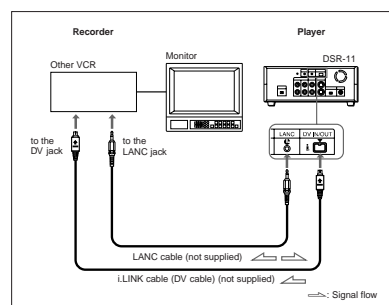
Notes

- Set DV EE OUT on the VTR SET menu to OFF.
For details on the VTR SET menu, see "VTR SET menu" on page 43 (GB).
- With the DV connection, data codes (recording date/time, camera data) recorded on the source tape are transmitted from this unit (player).

20 (GB) Chapter 2 Playback and Recording

Connecting to another VCR

The video and audio signals are sent to another VCR with virtually no deterioration in quality, enabling high-quality recording. The signal flow is automatically detected so you do not need to make separate connections for input and output.

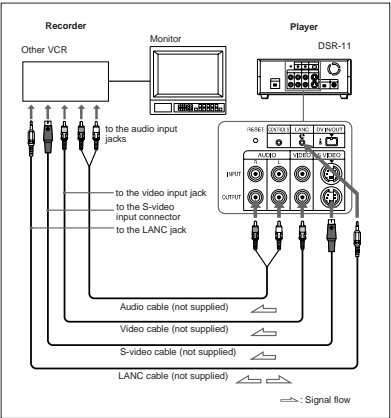


Notes

- Set DV EE OUT on the VTR SET menu to OFF.
For details on the VTR SET menu, see "VTR SET menu" on page 43 (GB).
- With the DV connection, the sound is recorded in the same audio recording mode as that of the source tape. To record in a different audio recording mode from the source tape, use the analog connection instead.
- With the DV connection, data codes (recording date/time, camera data) recorded on the source tape are transmitted from this unit (player). As a result, when you play back a recorded tape on this unit and press the DATA CODE button on the Remote Commander, the same data codes recorded on the source tape are displayed on the monitor screen.
- As for the LANC connection, see "Notes for a LANC connection" on the next page.

Chapter 2 Playback and Recording 21 (GB)

To video equipment without a DV jack



Connect either an S-video cable or a video cable as the cable for video signals.

- Notes**
- When you connect the output jacks of the recorder to the input jacks of this unit, select the input correctly with an input select switch on the recorder to prevent a humming noise or distortion of the picture.
 - Distorted signals (e.g., when played back at a speed other than normal) will not be recorded properly.

- Notes for a LANC connection**
- The LANC connection transmits signals such as control signals, time code, time counter data, and status data.
 - Jacks labeled CONTROL L have the same function as LANC jacks.
 - Jacks labeled REMOTE may also have the same function.
 - Set the LANC switch on the recorder to M. A device which does not have M / S switch cannot be used to control this unit.

Settings for Playback

Preparation on the player (this unit)

- Note**
- Various text data are superimposed and output from the VIDEO jack or the S VIDEO connector on the OUTPUT jacks. If you want to record video signals without text data, carry out the following operations.
- Set TITLE DISP and LABEL DISP on the CM SET menu to OFF.
 - Depending on the displayed items, press the MENU, DATA CODE, DISPLAY or SEARCH SELECT button on the Remote Commander to clear the text data on the monitor screen.
- For details on text data, see "Displaying data recorded on a tape" on page 25 (GB) and "Displaying various data" on page 26 (GB).
For details on the CM SET menu, see "CM SET menu" on page 46 (GB).

- Power on the video monitor, then set the monitor's input switch according to the signals input from the recorder.
 - Set up the recorder.
- For details, refer to the instruction manual of the recorder.
- Power on this unit by pressing the ON/STANDBY switch on this unit.
 - When you play back a tape recorded in 4-channel mode (Fs32k), adjust the balance between channel 1/2 and channel 3/4 with AUDIO MIX on the AUDIO SET menu.

For details on the AUDIO SET menu, see "AUDIO SET menu" on page 44 (GB).

- Note**
- The AUDIO MIX on the AUDIO SET menu (audio balance adjustment) does not function on the source audio output through the DV IN/OUT connector.

Playback

Playback Procedure

This section describes the procedures used to play back a tape and send signals to another VCR. For details on the procedures required when using a computer as a recorder, refer to the instruction manual of your computer or the user's manuals of the software installed in it.

- After checking the tape for slack and confirming that the indicator is off, hold the cassette so that the tape window is facing upward, then insert it into this unit.

For details on checking the tape for slack, see "Notes on Video Cassettes" on page 15 (GB).

- Note**
- Do not insert the cassette forcibly. The unit may be damaged.

The cassette is automatically loaded into the unit.

- Press the PLAY button.

This unit starts playback.

To stop playback
Press the STOP button on the unit.

To pause playback
Press the PAUSE button on the unit.

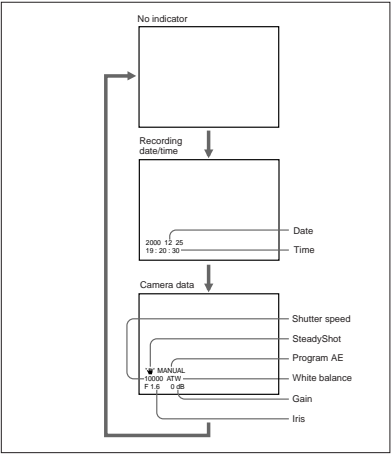
- Notes**
- When this unit is playing back a part of the tape where the recording format has been changed between the DVCAM format and the DV format, the picture and sound may be distorted.
 - This unit cannot play back a tape recorded in the LP mode of the consumer DV format.

Playback Functions

Displaying data recorded on a tape

If you record on a tape using a Sony digital camcorder (DSR-200/200P, 200A/200AP, PD100/PD100P, PD100A/PD100AP, PD150/PD150P, 250/250P, etc.), data codes (the shutter speed, SteadyShot, program AE mode, white balance, iris, gain, date and time) can be recorded on the tape. You can check these data items during playback on this unit.

Press the DATA CODE button on the Remote Commander during playback.
Each time you press the DATA CODE button, the display changes as follows.



(Continued)

Searching without cassette memory

When you use a tape without cassette memory, the unit searches in the order of the actual positions of the recordings, regardless of the setting of CM SEARCH on the CM SET menu.

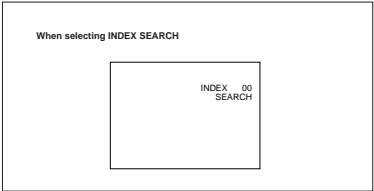
When you use a tape with cassette memory, set CM SEARCH on the CM SET menu to OFF.

For details on the CM SET menu, see "CM SET menu" on page 46 (GB).

Note

The title search is not available in searching without cassette memory.

- 1 Press the SEARCH SELECT button on the Remote Commander to select the search type.



- 2 Press the ◀◀ or ▶▶ button repeatedly to locate the recording you want.

Each time you press the ◀◀ or ▶▶ button, the unit searches for the previous or next search point. When a search point is located, its number is indicated on the monitor screen.

The unit starts searching backwards or forwards until the number comes to zero, then plays back the recording. During Photo search, the unit turns to the playback pause mode.

How signals are recorded

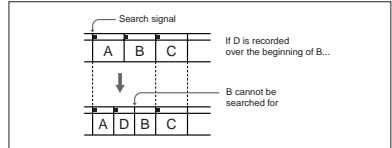
There are four different signal types, one for each search method; index, title, date and photo signals. They are recorded by the digital camcorder (DSR-200/200P, 200A/200AP, PD100/PD100P, PD100A/PD100AP, PD150/PD150P, 250/250P, etc.). However, the type of signal recorded and where it is recorded (on the tape or in the cassette memory) depends on whether the cassette has cassette memory or which type of video equipment is used for recording. Please note that if the signals for a certain search type are not recorded, you cannot do that type of search. For details on the signals used for a particular type of search, refer to the instruction manual of the recorder.

When you record on this unit

Signals for	In cassette memory	On tape
Index search*	Yes	Yes
Title search	No	No
Date search	No	Yes
Photo search	No	No

* The signals for Index search are recorded when you start recording in stop mode.

- Notes**
- If you record another program over the beginning of the search signals, you will not be able to locate the original program.



- You cannot add search signals after recording. To add signals only for Auto Repeat, start recording from the point you want to add them.
- When recording on this unit, signals for index search do not have information on the day of the week.
- Searching may not be done correctly if the signals were not recorded on a piece of Sony-brand digital video equipment.

About the cassette memory

- A tape with CM mark has cassette memory. When using the 16 kbits cassette memory, you can store up to 135 search signals. (The number changes depending on the memory capacity of various tapes. It also changes depending on the data size combination of index, title, date, photo, and tape label data stored on a tape.) This unit is capable of storing and retrieving up to 16 kbits of information in cassette memory.
 - To locate recordings that did not fit in the cassette memory, or to locate recordings in order of their position on the tape, set CM SEARCH on the CM SET menu to OFF. You can use the same procedure to search for a recording on a tape without cassette memory.
- For details on the CM SET menu, see "CM SET menu" on page 46 (GB).

Note

The number of search signals that you can record is limited by the cassette memory space available when you start recording. When you use a previously recorded tape for repeated recordings, make more memory space available by erasing unwanted items using ITEM ERASE or ERASE ALL on the CM SET menu before you start recording.

Auto Repeat

This unit can repeat the playback of all or a part of the tape.

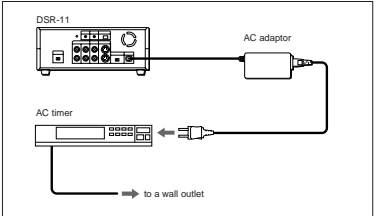
- 1 Set the AUTO REPEAT switch on the rear panel to ON.
- 2 Press the REW button. (If the tape is already rewound, press the PLAY button.)

The unit rewinds the tape to its beginning, and starts playback automatically. The unit repeats the playback from the beginning to the first index (if there is no signal for index search on the tape, to the next unrecorded portion; if there is no unrecorded portion, to the end of the tape).

Auto Repeat using an external AC timer

If you connect an external AC timer (not supplied) to this unit, you can repeat playback automatically at the preset time.

- 1 Connect an external AC timer (not supplied) to this unit.



- 2 Set the AUTO REPEAT switch on the rear panel to ON.
- 3 Set the starting time on the external AC timer.

At the preset time, the power of this unit turns on, and after a few seconds (no more than 30), Auto Repeat playback starts automatically. The unit repeats the playback from the beginning to the first index (if there is no signal for index search on the tape, to the next unrecorded portion; if there is no unrecorded portion, to the end of the tape).

- Notes**
- The unit cannot search for a signal for index search or an unrecorded portion within 20 seconds of the beginning of the playback.
 - While a tape is running, be sure not to turn off the power by using an AC timer. The unit and the tape may be damaged. When turning off the power of the unit, make sure to press the STOP button on this unit first to stop the tape transport, then turn off the power.

To stop Auto Repeat

Press the STOP button on this unit.

To release the Auto Repeat mode

Set the AUTO REPEAT switch on the rear panel to OFF.

Recording

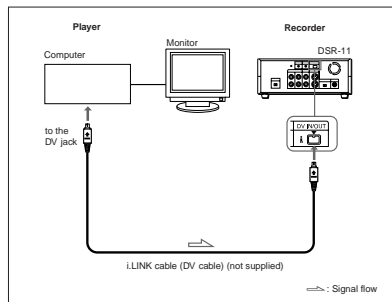
This section describes the necessary connections, settings and operations to perform recording on this unit. The same settings and operations apply whether you are using the unit for dubbing or as a stand-alone recorder.

Connections for Recording

To equipment with a DV jack

Connecting to a computer

The video and audio signals are sent from a computer with virtually no deterioration in quality, enabling high-quality downloading. The signal flow is automatically detected so you do not need to make separate connections for input and output.

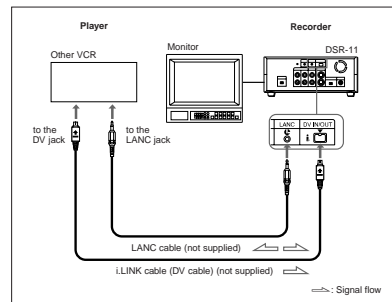


Notes

- With the DV connection, data codes (recording date/time, camera data) are transmitted from the computer (player). However, the contents of the cassette memory are not transmitted.
- If no picture appears via the DV jack, disconnect, then reconnect the i.LINK cable (DV cable).

Connecting to another VCR

The video and audio signals are sent from another VCR with virtually no deterioration in quality, enabling high-quality recording. The signal flow is automatically detected so you do not need to make separate connections for input and output.

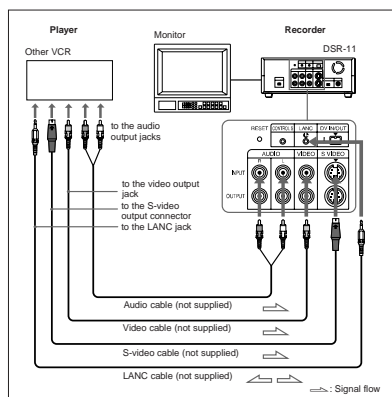


Notes

- With the DV connection, the sound is recorded in the same audio recording mode as that of the source tape. To record in a different audio recording mode from the source tape, use the analog connection instead.
- With the DV connection, data codes (recording date/time, camera data) recorded on the source tape are transmitted from the other VCR (player). As a result, when you play back a recorded tape on this unit and press the DATA CODE button on the Remote Commander, the same data codes recorded on the source tape are displayed on the monitor screen. However, the contents of the cassette memory are not transmitted.
- If no picture appears via the DV jack, disconnect, then reconnect the i.LINK cable (DV cable).
- As for the LANC connection, see "Notes for the LANC connection" on the next page.

Recording

To video equipment without a DV jack



Connect either an S-video cable or a video cable as the cable for video signals.

Notes

- When recording analog input signals, this unit can digitally output the signals from the DV IN/OUT connector for backup. Set DV EE OUT on the VTR SET menu to ON.
- For details on the VTR SET menu, see "VTR SET menu" on page 43 (GB).
- When you connect the output jacks of this unit to the input jacks of the player, select the input correctly with the INPUT SELECT selector on this unit to prevent a humming noise or distortion of the picture.
- Distorted signals (e.g., when played back at a speed other than normal) will not be recorded properly.

Notes for the LANC connection

- The LANC connection transmits signals such as control signals, time code, time counter data, and status data.
- Jacks labeled CONTROL L have the same function as LANC jacks. Jacks labeled REMOTE may also have the same function.

Settings for Recording

Preparation on the recorder (this unit)

Notes

- Before recording, set the date and time on the unit so that the recording time can be written into the search signal. You can set the date and time by setting CLOCK SET on the OTHERS menu.
- For details on the OTHERS menu, see "OTHERS menu" on page 49 (GB).
- Editing is not possible with a tape that is copyright protected.

- 1 Power on the video monitor, then set the monitor's input switch according to the signals input from this unit.

- 2 Set up the player to play back a tape.

For details, refer to the instruction manual of the player.

- 3 When the player is connected to the INPUT jacks on this unit, set the NTSC/PAL select switch on this unit to the appropriate position according to the input signals.

For NTSC formatted signals, set the switch to NTSC and for PAL formatted signals, set it to PAL.

For details on the NTSC/PAL select switch setting, see "Rear Panel" on page 12 (GB).

Notes

- Do not change the NTSC/PAL select switch setting during recording.
- If the color system of the input signals is different from that of the switch setting, both picture and sound will be muted.
- You do not need to set the NTSC/PAL select switch when inputting the signals to the DV IN/OUT connector. The unit detects the color system of the input signal automatically. However when the NTSC/PAL select switch is set to PAL, the time code generated by the unit while recording in DVCAM format turns to the non-drop frame mode. Even if an NTSC formatted signal is input from the DV IN/OUT connector, the time code generated by the unit is non-drop frame mode regardless of the TC FORMAT setting on the OTHERS menu.

If you intend to set the unit to generate the time code in the drop frame mode, set the switch to NTSC.

- 4 Power on this unit by pressing the ON/STANDBY switch on this unit.

(Continued)

- 5 Select an input signal by switching the INPUT SELECT selector on this unit.
- DV:** to record input signals from the DV IN/OUT connector
S VIDEO: to record input signals from the S VIDEO connector on the INPUT jacks
VIDEO: to record input signals from the VIDEO jack on the INPUT jacks
- Note**
Do not change the selector setting during recording. Otherwise, noise is output to the picture and sound and that portion will not be recorded properly.
- 6 When the player is connected to the INPUT jacks on this unit, select the audio mode.


Select the desired mode by setting AUDIO MODE on the AUDIO SET menu.

Audio mode	Set the menu to
4-channel mode	FS32K
2-channel mode	FS48K

For details on the AUDIO SET menu, see "AUDIO SET menu" on page 44 (GB).

- Notes**
- In the DVCAM format, there are two audio modes, with either two channels at 48 kHz or four channels at 32 kHz. It is not possible to select other modes (for example with two channels at 32 kHz).
 - When recording in 4-channel mode on this unit, audio signals are recorded only in channels 1/2. When you are going to dub sounds onto the tape, set AUDIO MODE to FS32K. (To dub a sound onto a tape (audio dubbing), you need another VCR that has audio dubbing capabilities. This unit does not have this function.)
 - During recording, you cannot change the audio mode selection.

Recording Procedure

- This section describes the procedures used to record signals sent from another VCR to this unit. For details on the procedures required when using a computer as a player, refer to the instruction manual of your computer or the user's manuals of the software installed in it.
- 1 After checking that the REC/SAVE switch is set to REC, checking the tape for slack and confirming that the  indicator is off, hold the cassette so that the tape window is facing upward, then insert it into this unit.

For details on the REC/SAVE switch and checking the tape for slack, see "Notes on Video Cassettes" on page 15 (GB).

The cassette is automatically loaded into the unit and the tape will stop.
 - 2 Press the playback button on the player.

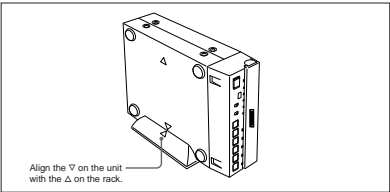
The player starts playback.
 - 3 Press the PLAY button while holding down the REC button.

The unit starts recording and the index is marked.
- To stop recording**
Press the STOP button on the unit.
- To pause recording**
Press the PAUSE button on the unit.
- To display useful data for recording on the monitor screen**
Press the DISPLAY button on the Remote Commander.
For details on displayed data, see "Displaying various data" on page 26 (GB).

Installing the Unit Vertically

To install the unit

Put the unit into the supplied rack as illustrated below. You can install it either standing on its left side or on its right side.



- Notes**
- Be sure to use the supplied rack. Without the rack, the unit may topple over and may be damaged or may cause injury.
 - Install the unit on a flat place.
 - When inserting a cassette, especially a mini cassette, hold it until it is loaded into the unit. Otherwise the cassette may fall out and the tape may be damaged.
- For details on inserting a cassette, see "Notes on Video Cassettes" on page 15 (GB).*

Chapter 3

Adjusting and Setting Through Menus

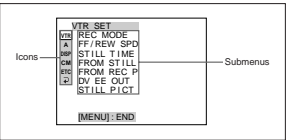
Operating the Menus

The unit allows you to set various parameters in the menus. Before you start using the unit, set the internal clock in CLOCK SET on the OTHERS menu. Except for clock setting, you can use all other factory-set default parameters but change them as needed.






Note
If the internal backup battery is exhausted, the menu settings will be initialized. The internal backup battery is fully charged if you connect the power to the unit for about 10 hours. The menu settings will be kept for about one month.

Displaying the menu

Press the MENU button on the Remote Commander.
The menu is superimposed on the analog video output.



Changing the menu settings

- 1 Pressing the  buttons on the Remote Commander, select the menu icon you want to change, then press the SET button on the Remote Commander.
 - 2 Pressing the  buttons, select the submenu you want to change, then press the SET button.
 - 3 Pressing the  buttons, change the setting.
 - 4 Press the SET button to return to the submenu.
 - 5 Repeat steps 2 to 4, as needed.
- To return to step 1**
Pressing the  buttons, select  RETURN, then press the SET button.
- To exit from the menu**
Press the MENU button again.

Operating the Menus

Menu Organization

The menu of this unit consists of the following menus and submenus.

Menu	Submenu (page)
VTR SET	REC MODE (page 43 (GB))
	FF/REW SPD (page 43 (GB))
	STILL TIME (page 43 (GB))
	FROM STILL (page 44 (GB))
	FROM REC P (page 44 (GB))
	DV EE OUT (page 44 (GB))
AUDIO SET	STILL PICT (page 44 (GB))
	AUDIO MODE (page 44 (GB))
	JOG AUDIO (page 45 (GB))
DISPLAY SET	AUDIO MIX (page 45 (GB))
	REMAIN (page 45 (GB))
	DATA CODE (page 45 (GB))
	COLOR BAR (page 45 (GB)) ^{a)}
	DATE DISP (page 45 (GB))
	TIME DISP (page 45 (GB))
CM SET	CM SEARCH (page 46 (GB))
	TITLE DISP (page 46 (GB))
	LABEL DISP (page 46 (GB))
	TAPE LABEL (page 46 (GB))
	ITEM ERASE (page 47 (GB))
	ERASE ALL (page 48 (GB))
OTHERS	DV IN TC (page 49 (GB))
	TC FORMAT (page 49 (GB)) ^{b)}
	CLOCK SET (page 49 (GB))
	HRS METER (page 49 (GB))

a) COLOUR BAR for PAL model

b) available only when you use an NTSC formatted signal

Menu Contents

Initial settings are indicated with rectangles.

VTR SET menu

Icon/Menu	Submenu (page)	Setting
VTR SET	REC MODE	Switches the recording mode between DVCAM and DV (SP mode only). When you play back a tape, the DVCAM/DV setting will be automatically switched; you do not need to use this item. DVCAM : Records in DVCAM format. DV SP : Records in DV format (SP mode). Notes <ul style="list-style-type: none">This unit is not compatible with playing or recording in LP mode of the consumer DV format.You cannot change the setting while recording.It is recommended that you record in the DVCAM format. There are some limitations with respect to DV recording depending on machine specifications and the consumer DV format as follows:<ul style="list-style-type: none">The head system is optimized for DVCAM recording. A DV recording overwrites the last track just before the beginning of the recording. As a result, at the border of these two recorded portions, picture and sound may be distorted.The sound will be recorded unsynchronized. (unlock mode)The time code is fixed to the drop frame mode. (only for NTSC)The DV IN TC setting on the OTHERS menu turns invalid. The unit records internal time code.If you dub a consumer DV tape from the DV IN/OUT connector on this unit, keep the following in mind:<ul style="list-style-type: none">Set the REC MODE to DV SP. If the REC MODE has been set to DVCAM, a tape with an invalid format (recording speed: DVCAM, sound: unsynchronized, unlock mode) will be made. (The unit cannot convert unlock mode sound to lock mode sound.)If you edit a tape with an invalid format in the DSR-70/70P, DSR-80/80P, DSR-85/85P, DSR-2000/2000P, etc., there may be some restrictions. <i>For details on DVCAM/DV format compatibility, see "Compatibility of DVCAM and DV Format" on page 55 (GB).</i>
	FF/REW SPD	Selects the tape transport mode in fast-forward and rewind. FF/REW : Fast-forwards or rewinds the tape at maximum speed without displaying the picture. SHUTTLEMAX : Fast-forwards or rewinds the tape at maximum speed (about 14 times normal speed for NTSC; about 17 times normal speed for PAL) while displaying the picture.
	STILL TIME	Selects the time to switch to the tape protection mode from the still mode. 30 SEC : 30 seconds 1 MIN : 1 minute 2 MIN : 2 minutes 3 MIN : 3 minutes 5 MIN : 5 minutes Notes <ul style="list-style-type: none">If the unit is left in playback pause mode for a long time, the tape or the video heads may be damaged or the video heads may become clogged. Select the shortest time possible particularly when using a Mini-DV cassette that is longer than 60 minutes, select 30 SEC or 1 MIN.When the setting is changed, the first tape protection mode change uses the time setting from before the settings were changed. From the second tape protection mode change, the new time setting is used.


(Continued)

Operating the Menus

Icon/Menu	Submenu (page)	Setting
VTR SET	FROM STILL	Selects the tape protection mode which to change the mode from the still mode. STEP FWD : Forwards one frame. STOP : Stops the tape.
	FROM REC P	Selects the tape protection mode that the system changes to after the recording has been paused for more than five minutes. STOP : Stops the tape. REC PAUSE : Maintains the recording pause mode. Note When the recording pause mode continues for a long time after you select REC PAUSE, the tape may be damaged or the video heads may become clogged. If there is no other reason to do this, select STOP. Particularly when you use a Mini-DV cassette that is longer than 60 minutes, select STOP.
	DV EE OUT (page 36 (GB))	Selects the output from the DV IN/OUT connector in the EE mode. OFF : Does not output DV signals converted from analog input signals. ON : Outputs DV signals from the DV IN/OUT connector that were converted from selected analog input signals. Notes <ul style="list-style-type: none">During playback, the unit outputs DV signals from the DV IN/OUT connector regardless of this setting.When you connect a computer to the DV IN/OUT connector, depending on your computer software, the selected analog input signals may be output to the computer even if this item is set to OFF.
	STILL PICT	Selects the image displayed in the still mode. AUTO : Displays an optimized image according to the movement in the image. FRAME : Displays a frame image. FIELD : Displays a field image. Note If you select FIELD, the image of field 2 is displayed.

AUDIO SET menu

Icon/Menu	Submenu (page)	Setting
AUDIO SET	AUDIO MODE (page 38 (GB))	Selects the audio mode. FS32K : Switches the audio mode to the four channel mode (12-bit mode). FS48K : Switches the audio mode to the two channel stereo mode (16-bit mode). (This setting records the sound in all audio ranges, providing a high-quality sound recording.) Notes <ul style="list-style-type: none">This item is disabled when inputting signals from the DV IN/OUT connector.You cannot display the selection screen while in the recording mode.Noise may occur at the moment you switch the audio mode.When you are going to dub sounds onto the tape, set this item to FS32K. (To dub a sound onto a tape, you need another VCR which has audio dubbing capabilities. This unit does not have this function.)



Icon/Menu	Submenu (page)	Setting
AUDIO SET	JOG AUDIO	Turns sound output on/off when the tape is played at a speed other than normal. OFF : Does not output the sound when playing a tape at a speed other than normal. ON : Outputs the sound when playing a tape at a speed other than normal. Note Even if you have set this item to ON, the sound may not be output or may be interrupted depending on the recording format or tape conditions.
	AUDIO MIX (page 23 (GB))	Adjust the balance of the analog audio output level between channels 1/2 and channels 3/4 during playback. Press the 1/4 buttons to move the bar, then press the SET button. 



DISPLAY SET menu

Icon/Menu	Submenu (page)	Setting
DISPLAY SET	REMAIN (page 27 (GB))	Selects whether or not to display the tape remaining time on the analog video output. ON : Displays the tape remaining time. OFF : Does not display the tape remaining time.
	DATA CODE (page 25 (GB))	Selects whether or not to display the data codes on the analog video output. OFF : Does not display the data codes. DATE : Displays the date and time when recorded. CAMERA : Displays the camera data.
	COLOR BAR (for NTSC model) / COLOUR BAR (for PAL model)	Selects whether or not to display the color bars. OFF : Does not display the color bars. ON : Displays the color bars. Notes <ul style="list-style-type: none">You cannot display the color bars while the unit is playing the tape or when the INPUT SELECT selector is set to DV.The color bars are displayed only on the analog video output.If you record when the color bars are displayed, the color bars will also be recorded on the tape.Do not use the color bars output from the OUTPUT jacks as a reference signal.The reference sound signals are not output even if this item is set to ON.This item will be automatically set to OFF if you set the INPUT SELECT selector to DV or you operate the tape transport control that display the pictures recorded on the tape.
	DATE DISP	Selects the date display in the search screen, the data code display and so on. Y/M/D : Displays YY/MM/DD (year/month/day). M/D/Y : Displays MM/DD/YY (month/day/year). D/M/Y : Displays DD/MM/YY (day/month/year). Note The default is M/D/Y for the NTSC model; D/M/Y for the PAL model.
	TIME DISP	Selects the time display in the search screen, the data code display and so on. 24H : Displays 24-hour time. 12H : Displays 12-hour time.

Operating the Menus



CM SET menu

Icon/Menu	Submenu (page)	Setting
CM SET	CM SEARCH (page 29 (GB))	Selects the mode which searches recordings. ON : Searches recordings using the cassette memory. (If the tape does not have cassette memory, the beginning of recording is searched for using the search signals on the tape.) OFF : Always searches recordings using the search signals on the tape.
	TITLE DISP	Selects whether or not to display the title. ON : Displays the superimposed title for about five seconds when the unit plays back the point where the title is recorded. OFF : Does not display the title. Notes <ul style="list-style-type: none">The title that has been made with the camera or an external device is displayed. You cannot make a title with this unit.The unit cannot display a font that the unit does not have.The title is displayed only on the analog video output.
	LABEL DISP	Selects whether or not to display the tape label. ON : Displays the tape label for about five seconds when a cassette that has a tape label is inserted. OFF : Does not display the tape label. Notes <ul style="list-style-type: none">The tape label is displayed only on the analog video output.If the tape label has been made with an other VCR or camcorder, this unit cannot display a tape label that includes a font that the unit does not have.
	TAPE LABEL	Makes a tape label. (You can enter up to 10 characters on a tape label.) If you select this item, one of the following symbols appears. If no cassette is loaded, nothing is displayed. CW : Tape with cassette memory CU : Tape without cassette memory You can make a tape label as follows: 1 On the TAPE LABEL screen, select the line that has the alphabet character you want by pressing the \uparrow/\downarrow and SET buttons. (The cursor moves to the first character of the line.)  2 Select a character by pressing the \uparrow/\downarrow and SET buttons. (The selected character is entered. To erase a character, select [+]; the last character is erased.) 

Icon/Menu	Submenu (page)	Setting
CM SET	TAPE LABEL	3 Repeat steps 1 and 2. After entering all characters for the tape label, select [SET]. Note The unit cannot display the TAPE LABEL screen in the following cases: <ul style="list-style-type: none">The unit does not have a tape inserted or the tape is being unloaded.The tape does not have cassette memory.The cassette memory is full of data other than the tape label data.The tape is write-protected.The tape is being recorded.The cassette memory is being used.
	ITEM ERASE	Erases a cassette memory item. If you select this item, one of the following symbols appears. If no cassette is loaded, nothing is displayed. CW : Tape with cassette memory CU : Tape without cassette memory The available items are as follows: INDEX ALL : Erases the index data. TITLE ALL : Erases the title data. DATE ALL : Erases the date data. PHOTO ALL : Erases the photo data. You can erase an item as follows: 1 Select an item to erase by pressing the \uparrow/\downarrow and SET buttons. 2 To erase the item, select OK, otherwise select RETURN. (If you select OK, the unit will check again to see if you really want to erase the item.)  3 To erase the item, select EXECUTE, otherwise select RETURN. (If you select EXECUTE, the ERASING message will flash, and the unit will start erasing the item in the cassette memory. While the ERASING message is flashing, you cannot use the \uparrow/\downarrow or SET buttons. After the item has been erased, the COMPLETE message appears. Press the \uparrow/\downarrow button to erase the COMPLETE message.)  Notes <ul style="list-style-type: none">You cannot make a title, mark the date for date search, or record in the photo mode with this unit.You cannot erase an item in the cassette memory in the following cases:<ul style="list-style-type: none">The unit does not have a tape inserted or the tape is being unloaded.The tape does not have cassette memory.The tape is write-protected.The tape is being recorded.The cassette memory is being used.

(Continued)

Operating the Menus

Icon/Menu	Submenu (page)	Setting
CM SET	ERASE ALL	Erases all items in the cassette memory. If you select this item, one of the following symbols appears. If no cassette is loaded, nothing is displayed. CW : Tape with cassette memory CU : Tape without cassette memory Erase all items in the cassette memory as follows: 1 To erase all items, select OK, otherwise select RETURN. (If you select OK, the unit will check again to see if you really want to erase all items.)  2 To erase all items, select EXECUTE, otherwise select RETURN. (If you select EXECUTE, the ERASING message will flash, and the unit starts erasing all items in the cassette memory. While the ERASING message is flashing, you cannot use the \uparrow/\downarrow or SET buttons. After all items have been erased, the COMPLETE message appears. Press the \uparrow/\downarrow button to erase the COMPLETE message.)  Note You cannot erase all items in the cassette memory in the following cases: <ul style="list-style-type: none">The unit does not have a tape inserted or the tape is being unloaded.The tape does not have cassette memory.The tape is write-protected.The tape is being recorded.The cassette memory is being used.

OTHERS menu

Icon/Menu	Submenu (page)	Setting
OTHERS	DV IN TC	Selects whether to record internal time code or external time code while the unit records the signals input from the DV IN/OUT connector in DVCAM format. [INTERNAL] : Records the time code generated by the internal time code generator. (If no time code is recorded on the tape, the unit records time code from 00:00:00.00. If there is time code already recorded on the tape, the unit records continuous time code from this point.) EXTERNAL : Records the time code with video and audio signals input from the DV IN/OUT connector. Notes <ul style="list-style-type: none">When you set the REC MODE on the VTR SET menu to DV SP, this item cannot be used. Even if it is once set to EXTERNAL, the setting turns invalid and the unit records the internal time code while you set REC MODE on the VTR SET menu to DV SP.When this item is set to EXTERNAL, the INPUT SELECT selector on the front panel is set to DV, and no signal is input from the DV IN/OUT connector, if you start recording, bars (— : — : —) are recorded as time code. At the point that inputting of a signal begins, the time code of that signal will be recorded.If you set this item to EXTERNAL and the external time code input is discontinuous or does not advance correctly, recording or displaying the time code on this unit may not be done correctly. If there is a discontinuous time code on your recorded tape, you may not be able to edit or search correctly, depending on the device used to edit.
	TC FORMAT	Selects the frame mode. [AUTO] : Automatically sets the frame mode in accordance with the inserted cassette. (If nothing is recorded on the tape, the mode is set to the non-drop frame mode. If the unit cannot read the frame mode correctly in the tape, the unit will use the frame mode that was set in the last position it was able to read correctly on the tape. If you turn the power on/off or remove the tape, the mode of the last position it was able to read correctly is cleared and the mode is set to the non-drop frame mode.) DF : Selects the drop frame mode. NDF : Selects the non-drop frame mode. Notes <ul style="list-style-type: none">When the NTSC/PAL select switch is set to PAL, the unit works as a PAL model.Therefore while recording in the DVCAM format, the time code generated by the unit turns to the non-drop frame mode. Even if an NTSC formatted signal is input from the DV IN/OUT connector, the time code generated by the unit is non-drop frame mode as long as the switch is set to PAL, regardless of this item setting. If you intend to set the unit to generate the time code in the drop frame mode, set the NTSC/PAL select switch to NTSC.Regardless of this setting, the frame mode is set to drop frame when you record in DV format (Only for NTSC).
	CLOCK SET (page 37 (GB))	Sets the internal clock of the unit. Pressing the \uparrow/\downarrow and SET buttons, sets the time (year, month, day, hour and minute). (When you set the minute, the second count will start from 00.) Notes <ul style="list-style-type: none">This item cannot be set during recording.Regardless of the DATE DISP setting on the DISPLAY SET menu, the date for CLOCK SET is displayed in the Y/M/D order.The internal backup battery will be fully charged in about 10 hours when power is provided to the unit. A fully charged internal backup battery can run the internal clock for about one month without the power provided through the AC adaptor.
	HRS METER (page 53 (GB))	Displays the accumulated time counts (by the digital hours meter) in units of 10 hours or 10 counts. OPERATION : Power on duration DRUM RUN : Drum rotation duration TAPE RUN : Tape run duration THREADING : Tape unthreading count

Maintenance

Troubleshooting

Please check the following before contacting your Sony dealer.

Symptom	Cause/Remedy
The power cannot be turned on.	The AC adaptor is disconnected. → Connect the AC adaptor.
The unit will not operate even if the power has been turned on.	• Moisture condensation has occurred. → Turn off the power and disconnect the AC adaptor. Connect the AC adaptor after about one minute and turn on the power. Then, if there is a cassette in the unit, remove the cassette and keep the cassette lid open, power on the unit and leave it on for more than one hour. • The cassette is not inserted straight. → Insert it straight.
The cassette cannot be inserted.	• There is moisture condensation on the head drum. → Keep the cassette lid open and turn the power on. Then, wait more than one hour. • The cassette is not inserted straight. → Insert it straight. • Another cassette has been loaded already. → Remove the cassette and insert the one you want to load.
It takes time to eject the cassette.	This is not a malfunction. → This unit ejects the cassette slowly to protect the tape.
No picture.	The video heads are dirty. → Clean the video heads using the supplied cleaning cassette.
Noise appears on the screen.	• A damaged cassette is inserted. → Insert another cassette. • The video heads are dirty. → Clean the video heads using the supplied cleaning cassette.
No picture via the DV jack.	• Reconnect the iLINK cable (DV cable) (not supplied). • The INPUT SELECT selector is set to other than DV. → Set it to DV.
The audio is noisy.	A damaged cassette is inserted. → Insert another cassette.
Pause is released automatically.	Pause mode is automatically released to protect the tape.
The picture and sound are muted in the EE or recording mode.	The NTSC/PAL select switch setting is not appropriate. → Set it to a suitable position for the color system of the input signals.
The Remote Commander or remote control unit does not work.	The REMOTE CONTROL switch setting is not appropriate. → Set it to a suitable position for the device you use.
Though DV IN TC on the OTHERS menu was set to EXTERNAL, the time code of the signals input from the DV IN/OUT connector cannot be recorded.	The REC MODE on the VTR SET menu is set to DV SP. → Set the REC MODE to DV/CAM.
When the unit is recording an NTSC formatted signal input from the DV IN/OUT connector in DV/CAM format, even if the TC FORMAT on the OTHERS menu is set to DF, the time code is recorded in non-drop frame mode.	The NTSC/PAL select switch is set to PAL. → Set it to NTSC.

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Notes on Use

Notes on the video cassette recorder

Do not install the unit in a place subject to direct sunlight or heat sources

If you do, its cabinet, mechanical parts, etc., may be damaged.

Do not install the unit in an extremely hot place

If the unit is left in a car parked with its windows closed (especially in summer), its cabinet may be damaged or it may not work correctly.

If the unit is brought directly from a cold to a warm location

Moisture may condense inside the unit and cause damage to the video head and tape. If you use the unit in a place subject to direct cold currents from an air conditioner, moisture may also condense inside the unit.

Do not place a heavy object on the unit

The cabinet may be damaged, or the unit may not work correctly.

Do not handle the unit roughly

Avoid rough handling or mechanical shock.

To avoid damaging the cabinet finish

Plastic is often used for the surface finishing of the unit. Do not spray a volatile solvent such as an insecticide toward the cabinet or place rubber or vinyl products on the cabinet for a long time. If you do, the finish of the cabinet may be damaged or the coating may come off.

Do not clean the cabinet with thinner or benzene

The cabinet may be damaged or its coating may come off. When you use a chemical-impregnated cloth, use it according to its directions.

Clean the cabinet with soft dry cloth

When the cabinet is very dirty, clean it with a soft dry cloth lightly moistened with a mild detergent solution and finish it with a dry cloth.

Do not put magnetic objects close to the unit

Magnetic fields may damage the recording.

To prevent electromagnetic interference caused by radio communication equipment such as cellular phones, transceivers, etc.

The use of the radio communication equipment such as cellular phones or transceivers near the unit may cause a malfunction and can affect the audio/video signals. The cellular phones or transceivers near the unit should be switched off.

Do not use the unit in an area exposed to radiation

A malfunction may occur.

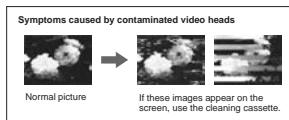
Checking the video heads every 1000 hours

A VCR is a high-precision piece of equipment that records and plays back the picture on a magnetic tape. In particular, the video heads and other mechanical parts become dirty or worn. To maintain a clean picture, we recommend maintenance every 1000 hours, though the conditions of use may differ depending on temperature, humidity, dust, etc.

Cleaning of the video heads

If the video heads are contaminated, the pictures cannot be recorded properly or the playback pictures become noisy. If the following phenomena occur, use the cleaning cassette (supplied) to clean the heads.

- Square-shaped noise appears on the playback picture.
- A part of the playback picture does not move.
- The playback picture does not appear on the screen.

**To use the cleaning cassette**

Refer to your cleaning cassette's operating instructions.

After prolonged use, the video heads may become worn out. If optimum picture quality is not restored even after you have cleaned the video heads with the cleaning cassette, the video heads may have worn out. In that case, you have to replace the video heads with new ones. Please consult your Sony dealer.

Alarm Messages

If an error occurs, a caution appears on the analog video outputs when you set the unit to output signals with data items. Check them with the following list.

For details on data items, see "Displaying various data" on page 26 (GB).

Monitor	Indicator lamp (flash) ^{a)}	Description/Recovery
	CAUTION	
	Rapid flashing	Moisture condensation (without a cassette) → Keep the cassette lid open and turn the power on, then wait more than one hour.
	Rapid flashing	Moisture condensation (with a cassette) → Remove the cassette and keep the cassette lid open and turn the power on, then wait more than one hour.
	Slow flashing	You tried to record without a cassette inserted. → Insert a cassette.
	Slow flashing	The tape is reaching the end during recording. → Provide a new cassette.
	Slow flashing	The tape reached the end and still tried to record. → Rewind the tape or replace the tape with a new one.
	Slow flashing	The cassette is write-protected (The REC/SAVE switch is set to SAVE) and you tried to record. → Set the REC/SAVE switch to REC or use another cassette (See page 16 (GB)).
	Slow flashing	You did not set the clock when you turned on the unit. → Set the clock with the menu (See page 49 (GB)).
	Slow flashing	You tried to record a copyright-protected source. → You cannot record a copyright-protected source (See page 19 (GB)).
	Rapid flashing	The video heads are clogged. → Clean the video heads with the supplied cleaning cassette. (The unit detects if the video heads are clean only before recording. If the video heads get clogged during recording, the unit cannot detect it.)
	Rapid flashing	The unit is running the self-diagnostics (See page 54 (GB)). This caution display ceases when you turn on/off the power of the unit.

a) The indicator flashes 3.2 times per second in the rapid flashing mode and flashes 0.8 time per second in the slow flashing mode.

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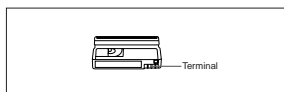
Notes on the video cassettes

If the cassette memory function does not work

Reinsert the cassette a few times. The terminal portion of the cassette may be dusty or dirty.

Cleaning the terminal

If the terminal of the cassette gets dirty, or dust sticks to the terminal, the unit may not work correctly. Clean the terminal with a swab once every ten times you eject a cassette.

**When affixing a label on the cassette**

Be sure to affix a label only on the correct location so as not to cause malfunction of the unit.

After using a cassette

After use, please be sure to rewind the tape completely (to prevent picture and sound distortion). Return it to its case and store it in an upright position.

About moisture condensation

If the unit or tape is brought directly from a cold to a warm location, moisture may condense inside or outside the unit or tape. If you use the tape or video heads in this condition, the tape may adhere to the head drum, and the video heads or the tape may be damaged, or a malfunction may occur.

Moisture condensation is likely to occur under the following conditions:

- The unit or tape is brought from the cold outdoors to a warm indoor location.
- The unit or tape is brought from the air-conditioned indoors to the hot outdoors.
- The unit is used in a place subject to cold currents from an air conditioner.

When bringing the unit or tape from a cold place to a warm place or vice versa, put it in a plastic bag and seal the bag tightly. After bringing it into the new place, leave the bag on for more than one hour, and remove the bag when the air temperature inside it has reached the temperature surrounding it.

If moisture condensation occurred

You cannot operate the unit except to press the EJECT button, and the cassette cannot be inserted. If this occurs, turn on the power to remove the cassette, then keep opening the cassette lid, and finally wait more than one hour for the moisture to evaporate.

Digital hours meter

The digital hours meter keeps cumulative counts of the total operation time, the head drum rotation time, the tape running time and the number of unthreading operations. These counts can be displayed on the monitor screen. Use them as guidelines for scheduling maintenance. In general, consult your Sony dealer about necessary periodic maintenance checks.

The digital hours meter has the following four display modes and you can check them in HRS METER of the OTHERS menu (See page 49 (GB)).

• OPERATION mode

The cumulative total hours of operating time is displayed in 10-hour increments.

• DRUM ROTATION mode

The cumulative total hours of drum rotation with tape threaded is displayed in 10-hour increments.

• TAPE RUN mode

The cumulative total hours of tape running time is displayed in 10-hour increments.

• THREADING mode

The cumulative number of tape unthreading operations is displayed in 10-operation increments.

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Notes on Use

Self-diagnostics function

The unit has a self-diagnostics display function. This function displays the current condition of the unit as a five-digit code (a combination of a letter and numbers) on the analog video output. If a five-digit code is displayed, check the following code chart. The last two digits (indicated by □□) will differ depending on the state of your unit.

Code	Symptom	Remedy
C:21:□□	Moisture condensation has occurred.	Remove the cassette and keep the cassette lid open and turn the power on. After waiting more than one hour, insert the cassette again.
C:22:□□	The video heads are dirty.	Clean the heads using the cleaning cassette (supplied).
C:31:□□	To prevent the unit from malfunctioning, the self-diagnostics function has taken over.	• Remove the cassette, or turn on/off the unit. • Disconnect the AC adaptor. After reconnecting it, operate the unit.
C:32:□□	To prevent the unit from malfunctioning, the self-diagnostics function has taken over.	• Turn on/off the unit. • Disconnect the AC adaptor. After reconnecting it, operate the unit.

If you are unable to resolve the problem, or a code other than those in the above chart appears, contact your Sony dealer or local authorized Sony service facility and inform them of the number.

Compatibility of DVCAM and DV Format

DVCAM and DV cassettes

Both DVCAM and DV cassettes can be used on DVCAM or DV video equipment. The recording format is defined according to recorder format as described below.

Recorder format	Cassette format	Recording format
DVCAM (If the REC MODE on the VTR SET menu is set to DVCAM on this unit.)	DVCAM DV	DVCAM
DV (If the REC MODE on the VTR SET menu is set to DV SP on this unit.)	DVCAM DV	DV

- This unit can record in DV format. (SP mode only)
- This digital videocassette recorder complies with the DVCAM format. Though DV cassettes can be used for recording, we recommend that you use DVCAM cassettes. Particularly when you use a Mini-DV cassette that is longer than 60 minutes, do not play back the tape repeatedly (i.e., when editing). Set STILL TIME to 1 MIN or 30 SEC (See page 43 (GB)), and FROM REC P to STOP (See page 44 (GB)).
- If you use a DV cassette to record images in the DVCAM format, the recording time will be reduced to 2/3 of the time indicated on the DV cassette.
- If you use a DVCAM cassette to record images in the DV format (SP mode), the recording time will be extended to 1.5 times the time indicated on the DVCAM cassette.

Compatibility on playback

Some tapes cannot be played on DVCAM or DV video equipment.

Tape	On DV video equipment (Consumer VCR)	On DVCAM video equipment (This unit)
DV-formatted	Can be played back. (A tape recorded in the LP mode cannot be played by some equipment.)	Can be played back only when recorded in the SP mode. A tape recorded in the LP mode can be played by some equipment. (This unit can play back a DV-formatted tape only in the SP mode.)
DVCAM-formatted	Some DV video equipment may be able to play back a DVCAM-formatted tape.	Can be played back.

Appendix

Compatibility of DVCAM and DV Format

The DVCAM format was developed as a more reliable and higher end format than the consumer DV format. Here we explain the DVCAM and DV formats: the differences, compatibility and limitations on editing.

Differences between DVCAM and DV format

Item	DVCAM	DV
Track pitch	15 µm	10 µm
Audio sampling frequency	12 bit: 32 kHz 16 bit: 48 kHz	12 bit: 32 kHz 16 bit: 32 kHz, 44.1 kHz, 48 kHz ²⁾
Audio recording mode ¹⁾	Lock mode	Unlock mode
Time code system	NTSC: SMPTE time code (DF/NDF/including user bits) ³⁾ PAL: EBU time code (including user bits) ³⁾	Drop frame mode (NTSC) without user bits

- 1) There are two modes for audio recording: Lock mode and Unlock mode. In Lock mode, the sampling frequencies of audio and video are synchronized. In Unlock mode, which the consumer DV format adopts, the two sampling frequencies are independent. The lock mode maintains high compatibility with the higher formats and is more effective than unlock mode in digital processing and smooth transition during audio editing.
- 2) This unit cannot record in DV format with 16 bit – 32 kHz or 44.1 kHz.
- 3) The user bits cannot be set on this unit.

Compatibility on editing using a DV connection

When this unit is connected to other DVCAM or DV video equipment using DV connectors, the recording format of an edited tape is defined according to the recorder format as described below.

Source tape	Player format	Recorder format ²⁾	Recorded format
DV-formatted ¹⁾	DVCAM	DVCAM DV	DVCAM ³⁾ DV
DV-formatted	DV	DVCAM DV	DVCAM ³⁾ DV
DVCAM-formatted ⁴⁾	DVCAM	DVCAM DV	DVCAM DV ⁵⁾
DVCAM-formatted ⁴⁾	DV ⁵⁾	DVCAM DV	DVCAM ⁵⁾ DV ⁵⁾

- 1) On this unit, only DV-formatted tapes recorded in the SP mode can be used as source tapes.
- 2) This unit will be restricted according to the REC MODE setting on the VTR SET menu.
- 3) When you copy a DV-formatted tape using DVCAM video equipment, the recorded format of the copied tape is the following DVCAM format.
 - The audio recording mode of the copied tape is unlock mode.
 - The time code of the copied tape is partly inaccurate.
- 4) If you use a DVCAM-formatted tape as described in 3) above, the audio recording mode of the recorded tape is unlock mode and the time code is partly inaccurate.
- 5) Some DV video equipment may be able to play back a DVCAM-formatted tape. Even if the tape is played back, the contents of the playback cannot be guaranteed.
- 6) The audio recording mode of the edited tape is lock mode.
- 7) Depending on the signal conditions of the source tape, you may not be able to edit the tape using the DV connection.

Limitations on editing

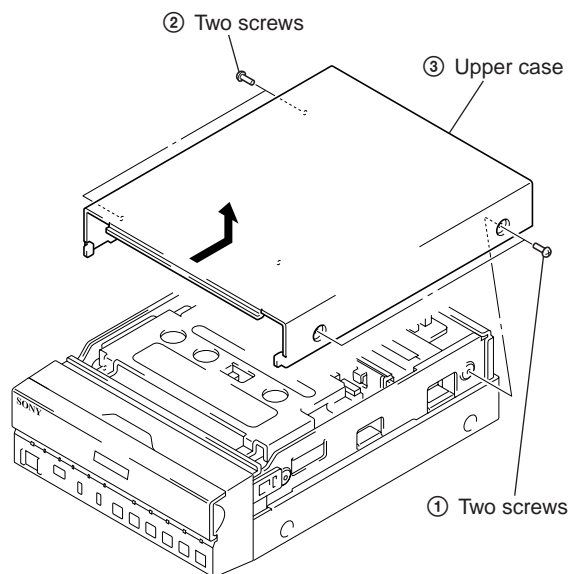
You will find the following limitations when editing.

- Due to differences of track pitch, you cannot record or edit DV-formatted tapes using DVCAM video equipment.
- Depending on signal conditions, you may not be able to record or edit DVCAM-formatted tapes. In these cases, copy the tape again using analog audio/video jacks.

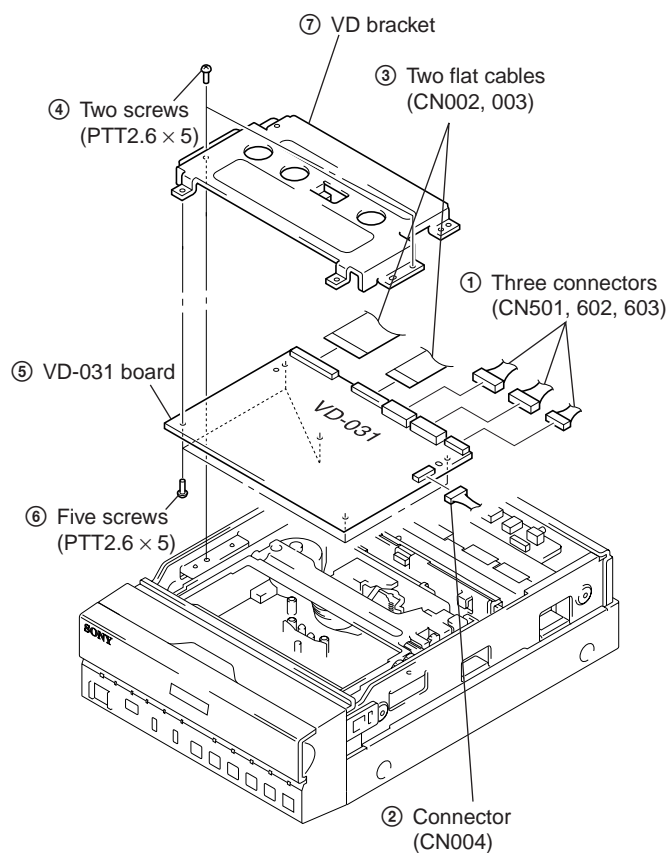
SECTION 2 DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

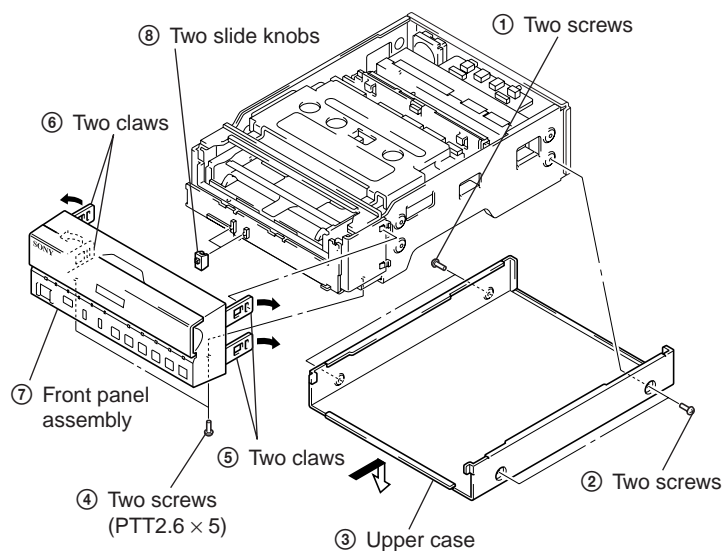
2-1. UPPER CASE



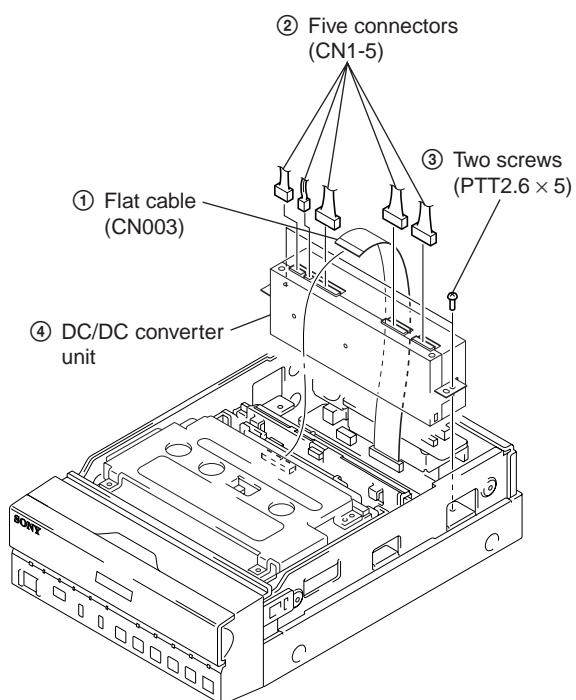
2-3. VD-031 BOARD



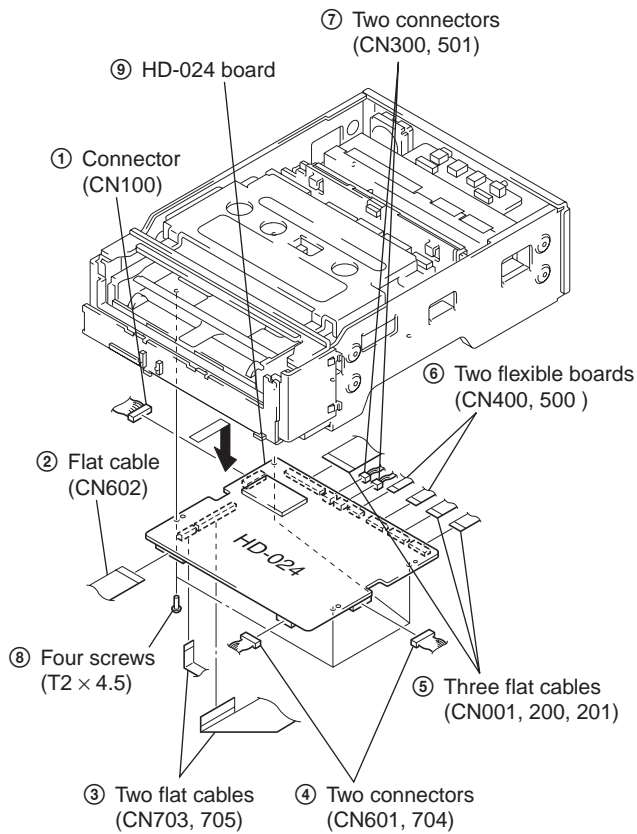
2-2. FRONT PANEL ASSEMBLY



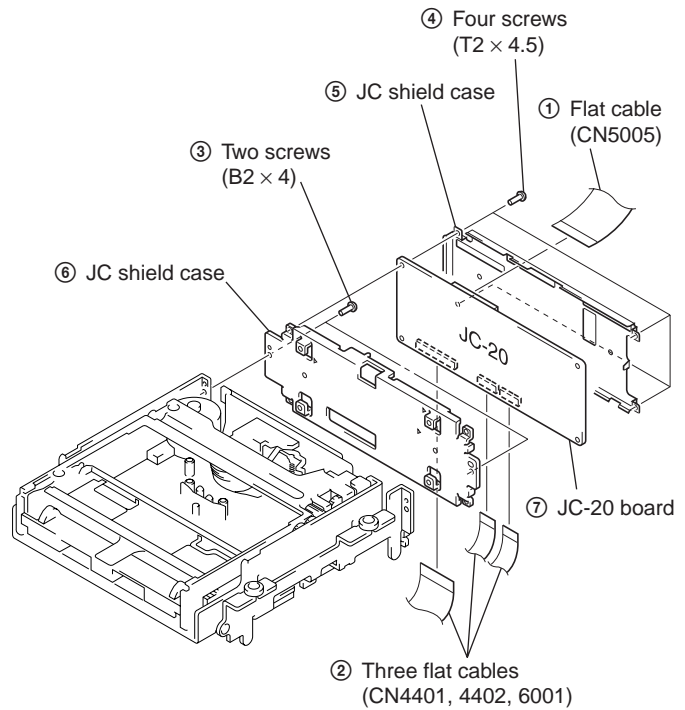
2-4. DC/DC CONVERTER UNIT



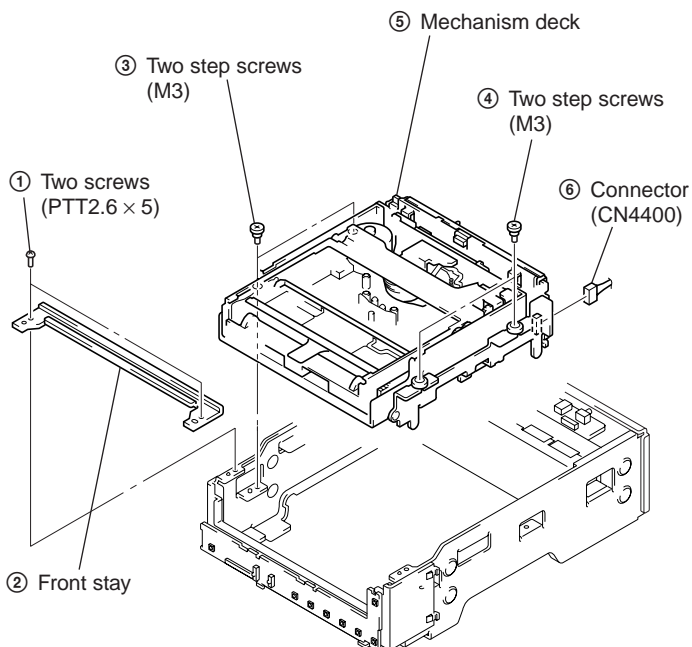
2-5. HD-024 BOARD



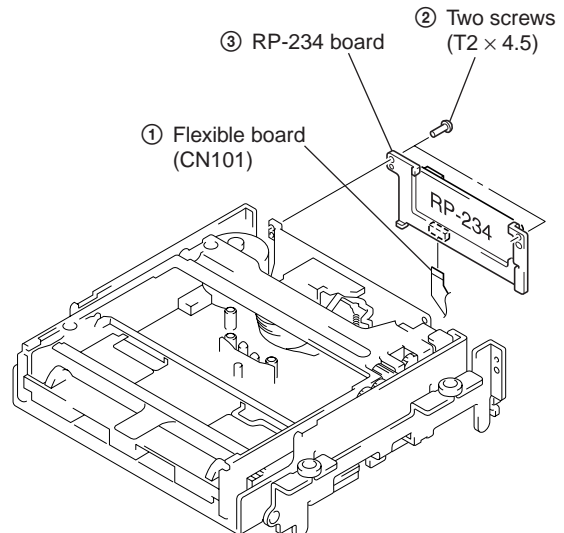
2-7. JC-20 BOARD



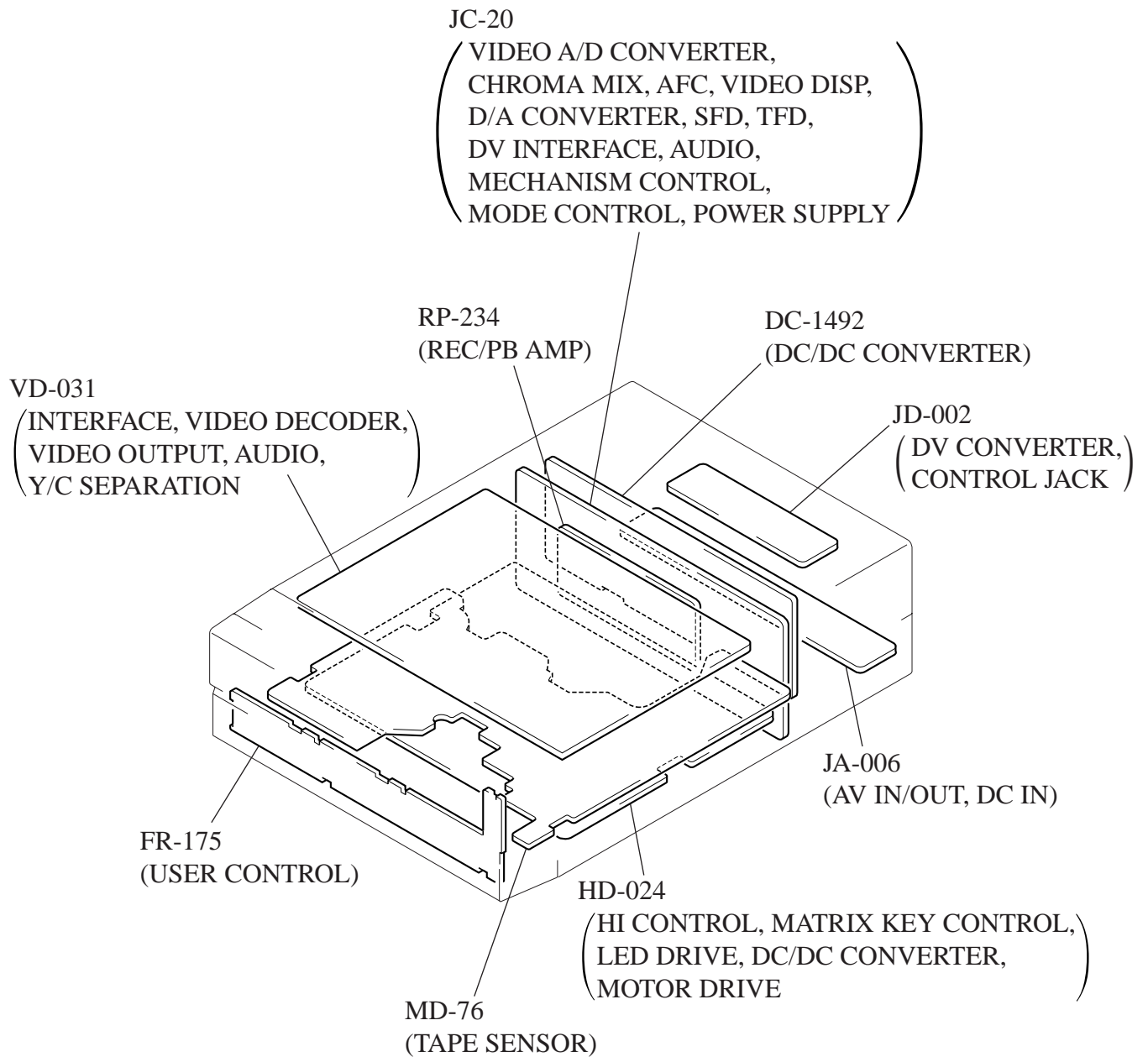
2-6. MECHANISM DECK



2-8. RP-234 BOARD

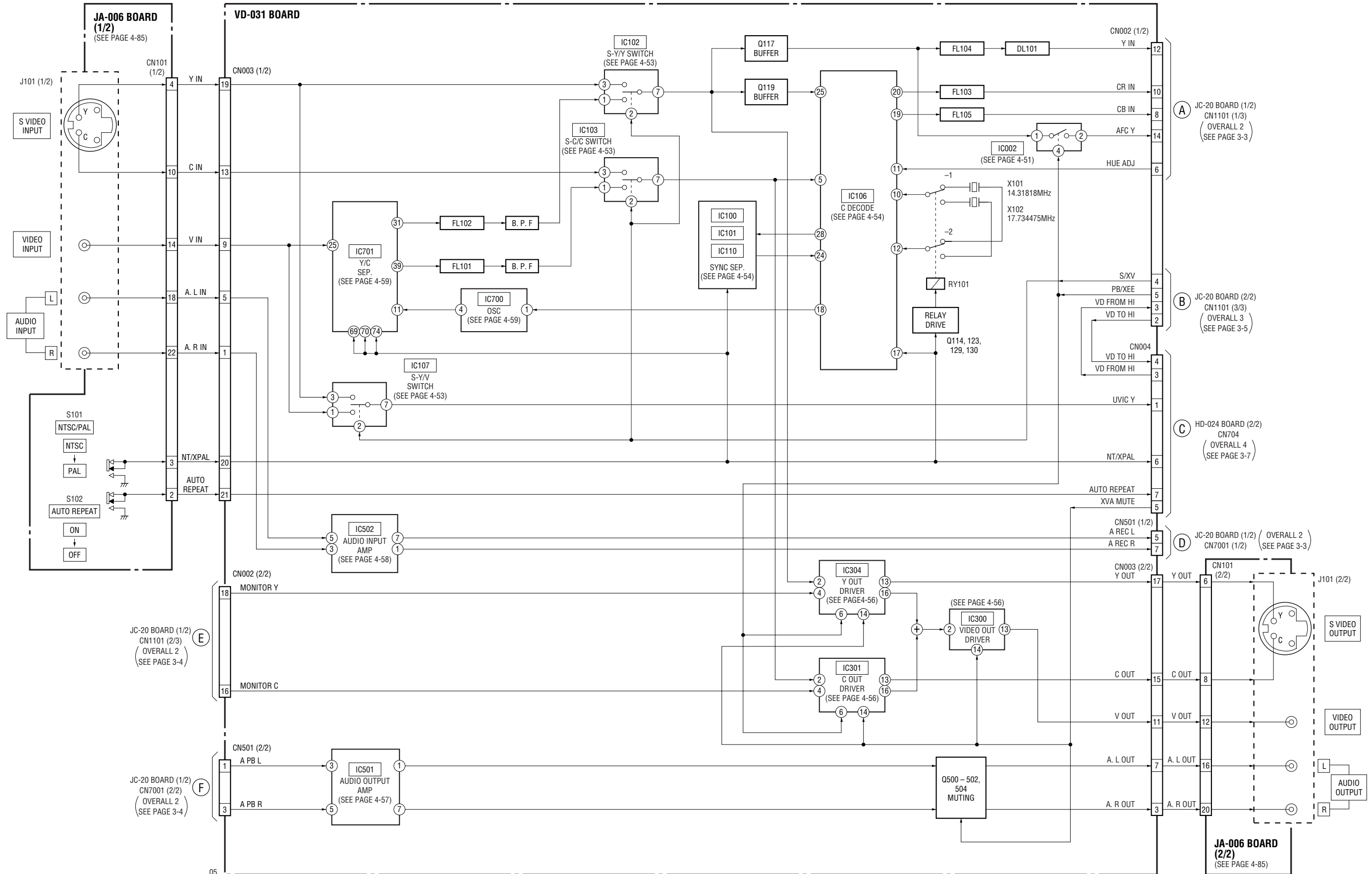


2-9. CIRCUIT BOARDS LOCATION



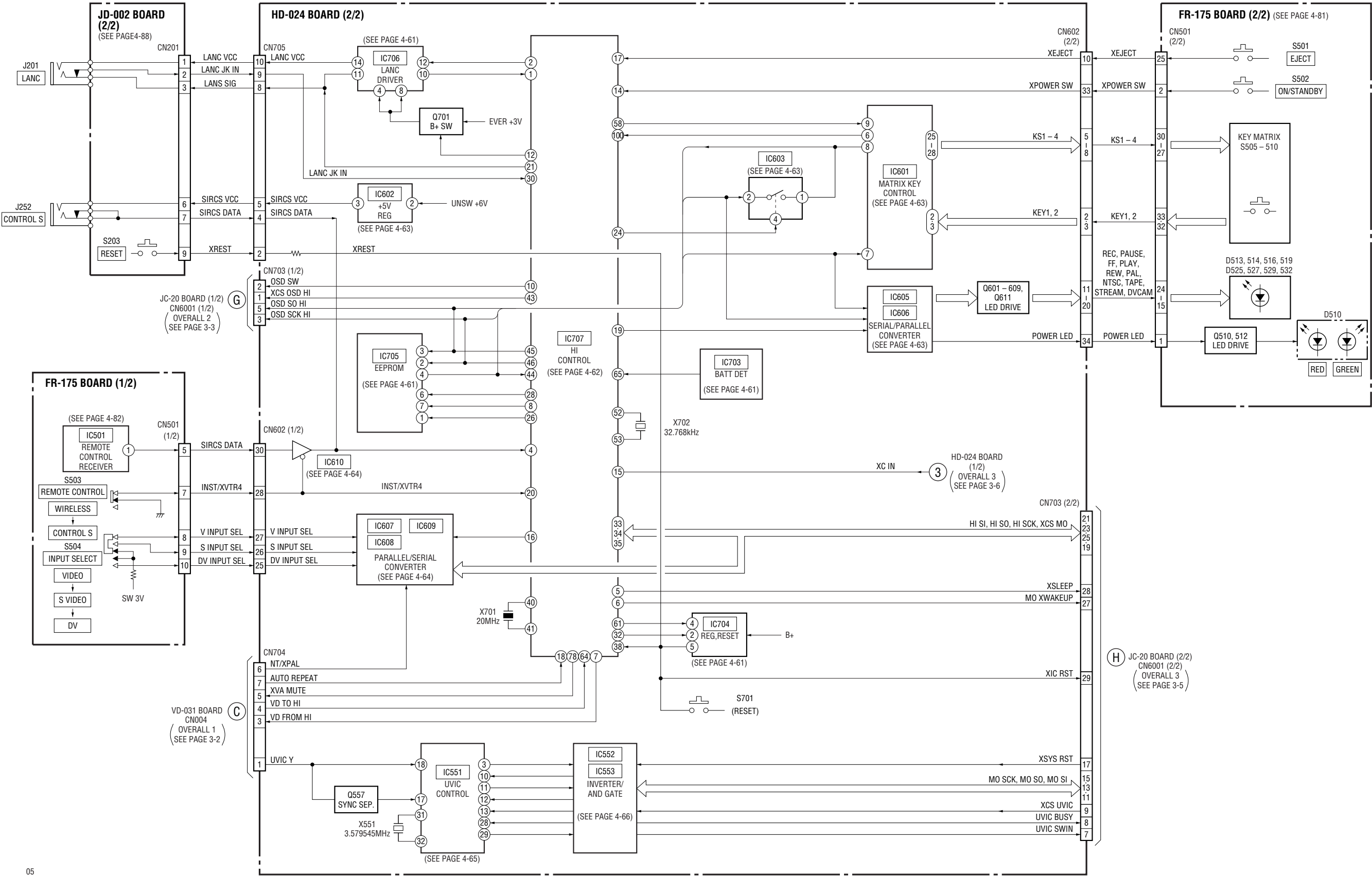
SECTION 3 BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM 1

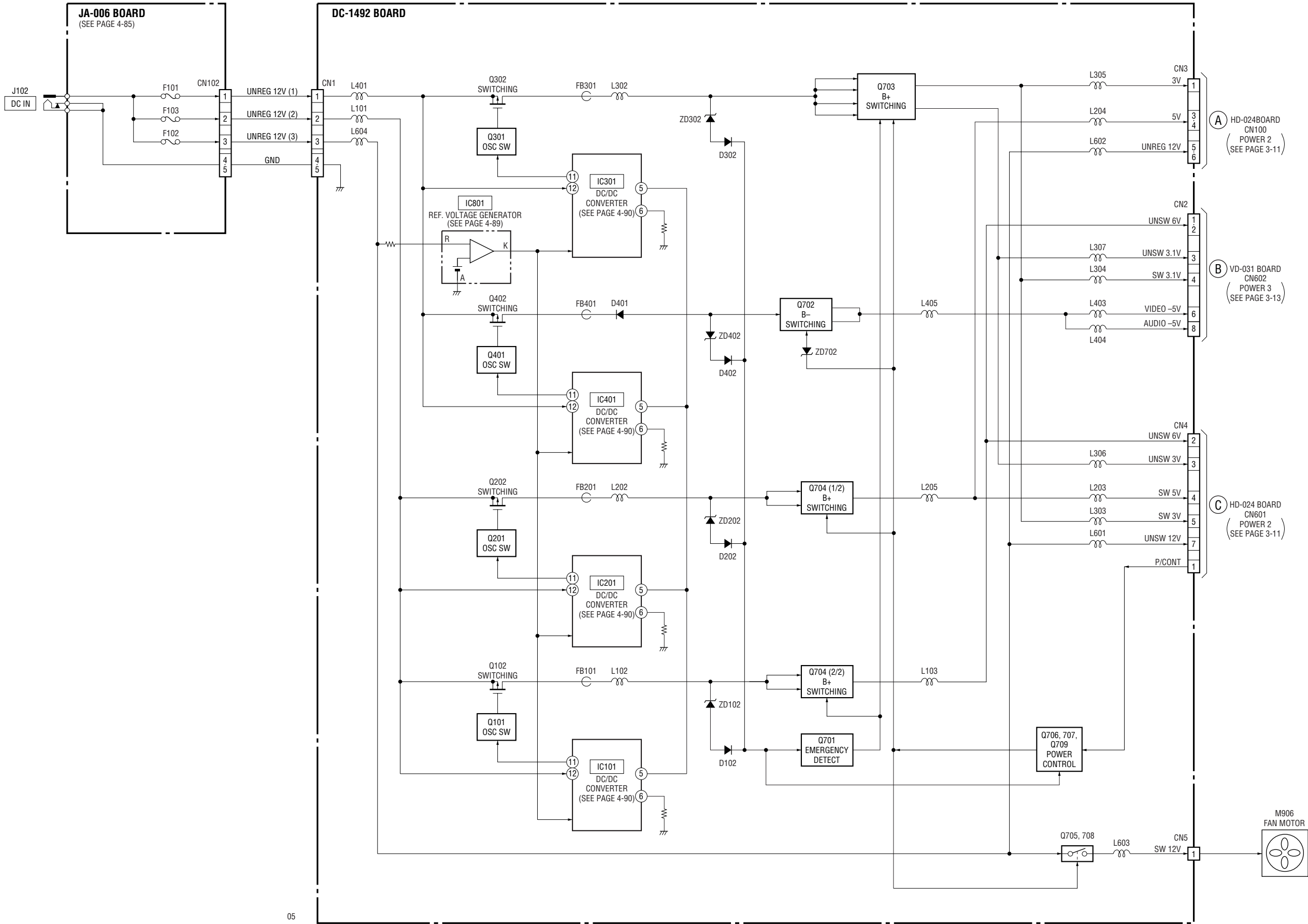




3-4. OVERALL BLOCK DIAGRAM 4

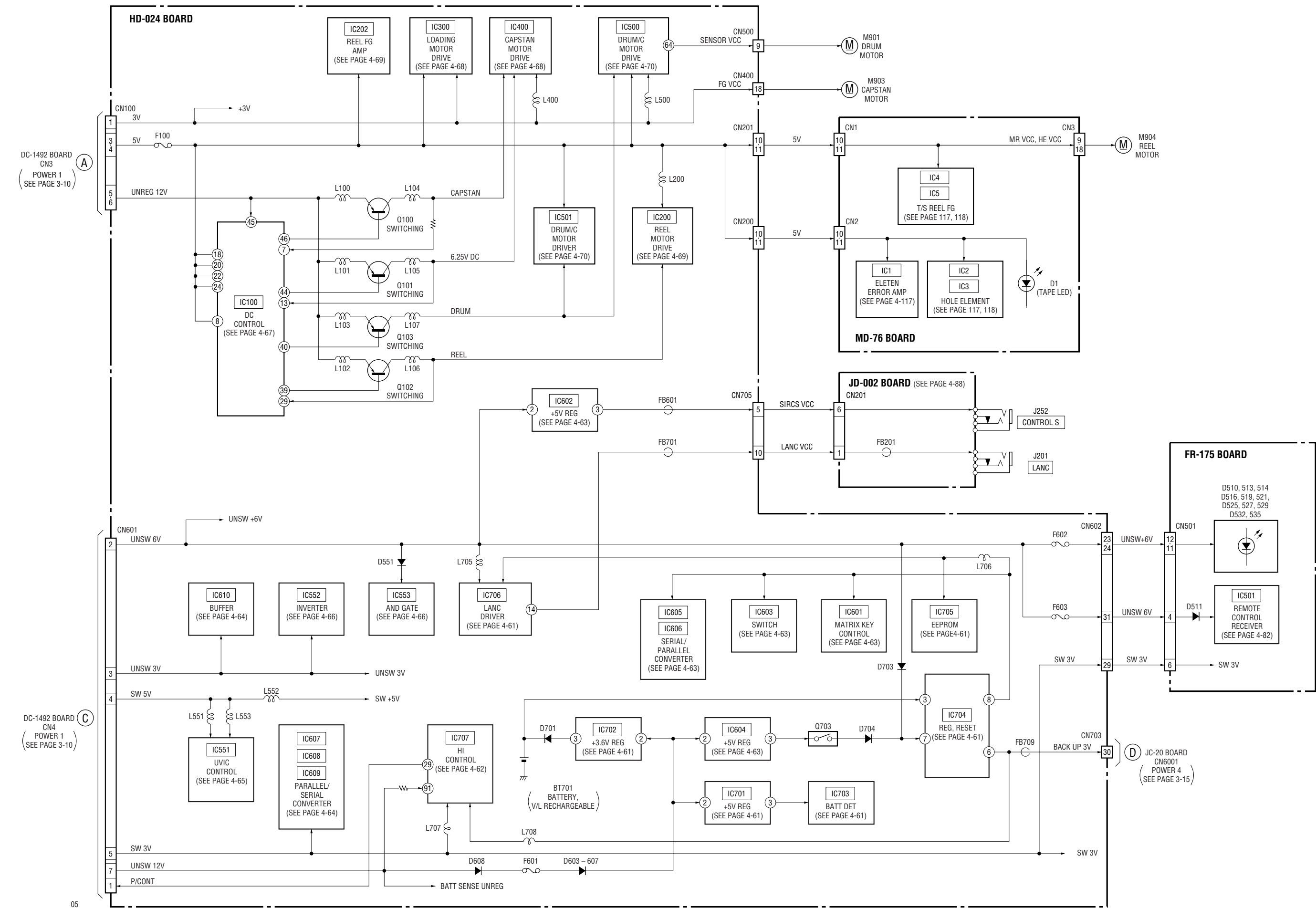


3-5. POWER BLOCK DIAGRAM 1

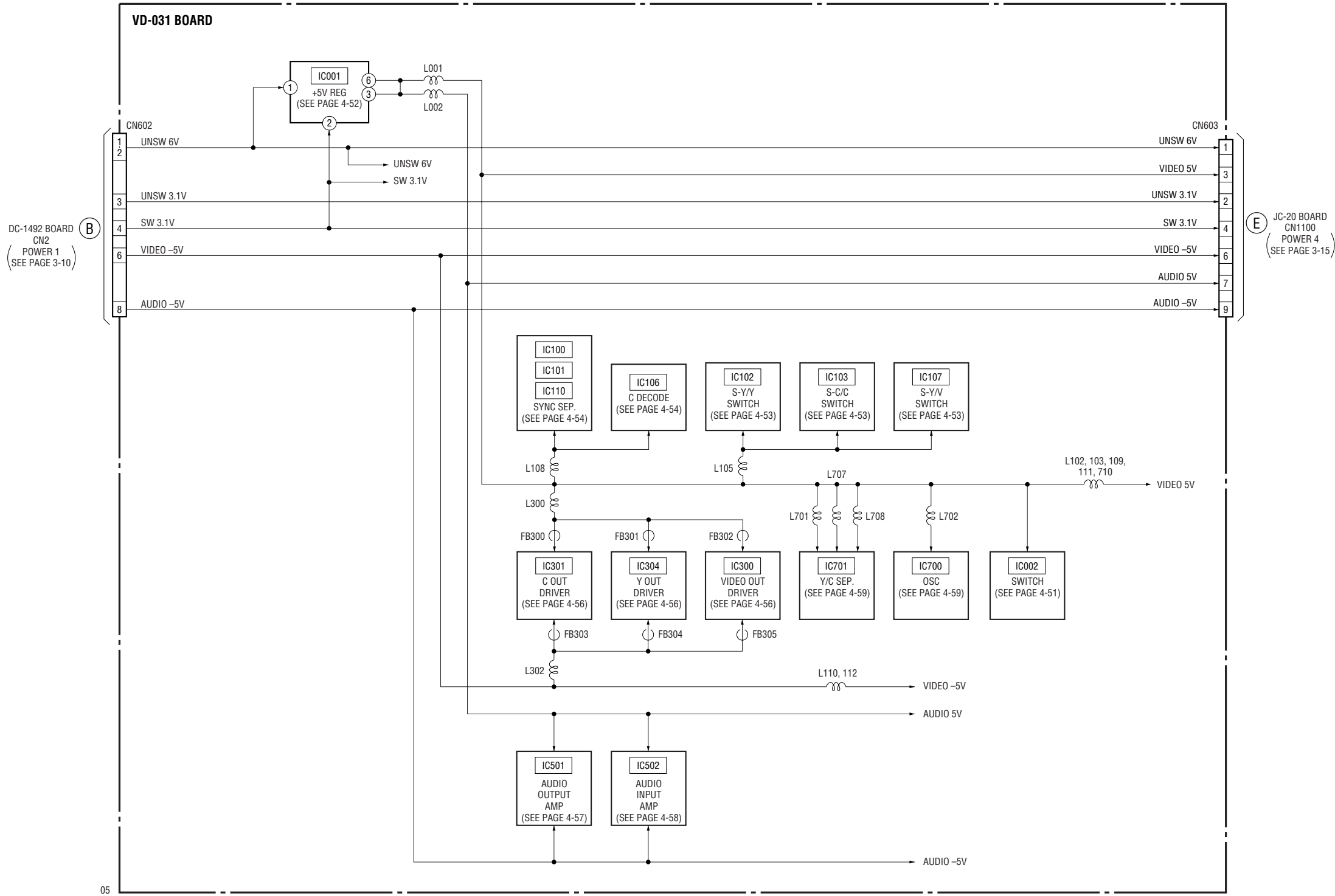


05

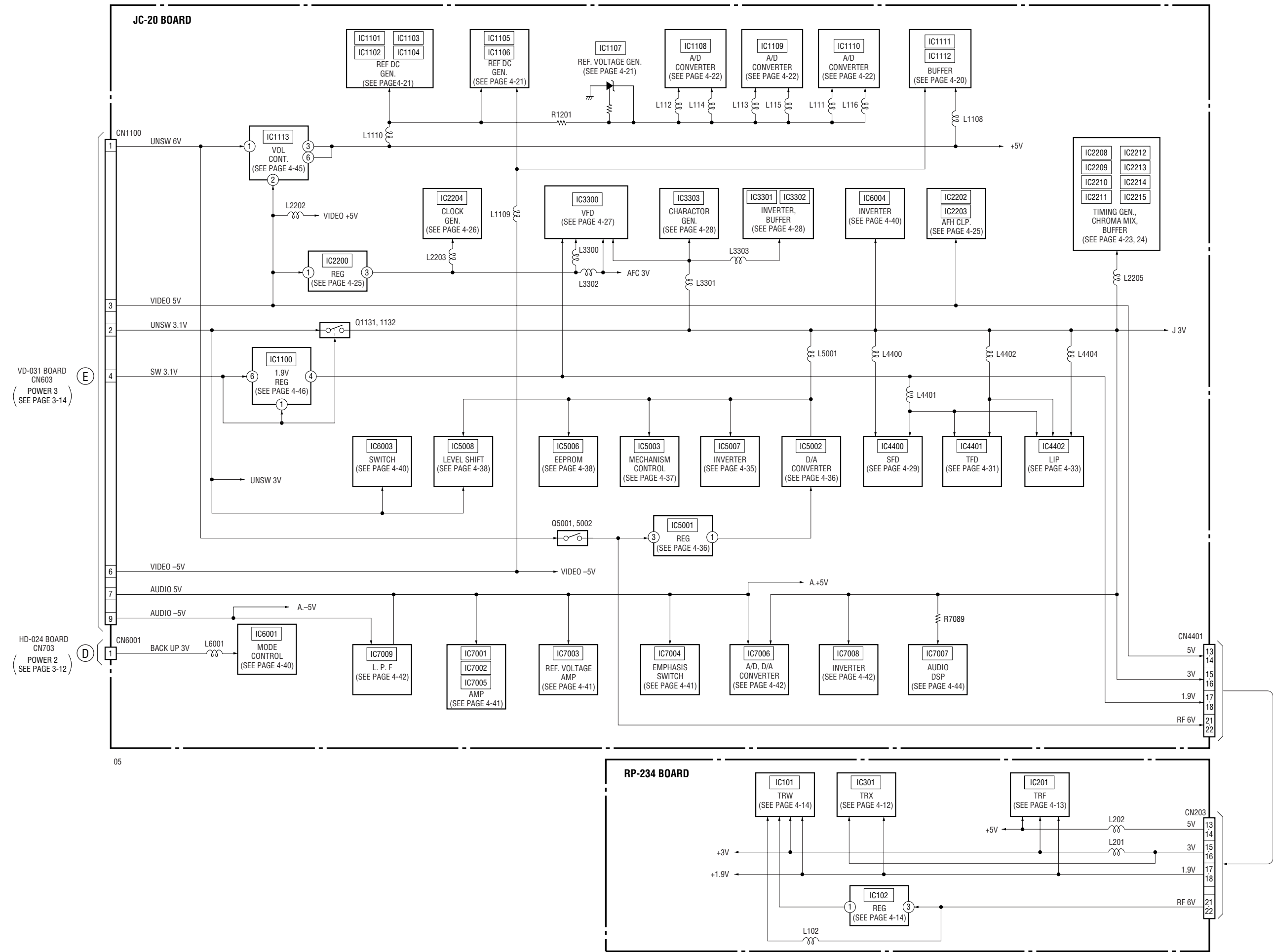
3-6. POWER BLOCK DIAGRAM 2



3-7. POWER BLOCK DIAGRAM 3




3-8. POWER BLOCK DIAGRAM 4

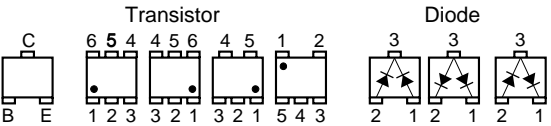


SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block)

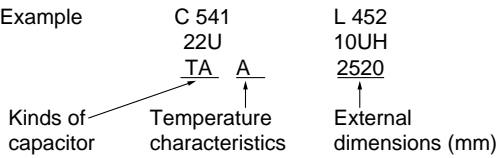
For printed wiring boards:








-  : Pattern from the side which enables seeing.
(The other layers' pattern are not indicated)
- Circled numbers refer to waveforms.
- Through hole is omitted.
- There are a few cases that the part printed on diagram isn't mounted in this model.
- Chip parts.



For schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF : μF
50V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are $\frac{1}{10}\text{W}$ unless otherwise noted.
 $\text{k}\Omega$: 1000Ω , $\text{M}\Omega$: $1000\text{k}\Omega$.
- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- Some chip part will be indicated as follows.





- Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used. In such cases, the unused circuits may be indicated.
- Parts with ★ differ according to the model/destination. Refer to the mount table for each function.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name
XEDIT → EDIT PB/XREC → PB/REC
-  : nonflammable resistor.
-  : fusible resistor.
-  : panel designation.
-  : B+ Line.*
-  : B- Line.*
-  : IN/OUT direction of B line (+, -).*
-  : adjustment for repair.*
- Circled numbers refer to waveforms.*


Measuring conditions voltege and waveform:

- Voltages and waveforms are measured between the measurement points and graound when color bar signal input.They are reference values and reference waveforms.*
(VOM of DC 10 M Ω input impedance is used)
- Voltage values change depending upon input impedance of VOM used.
- * Indicated by the color red.

Note:

The components identified by mark  or dotted line with mark  are critical for safety.
Replace only with part number specified.

Note:

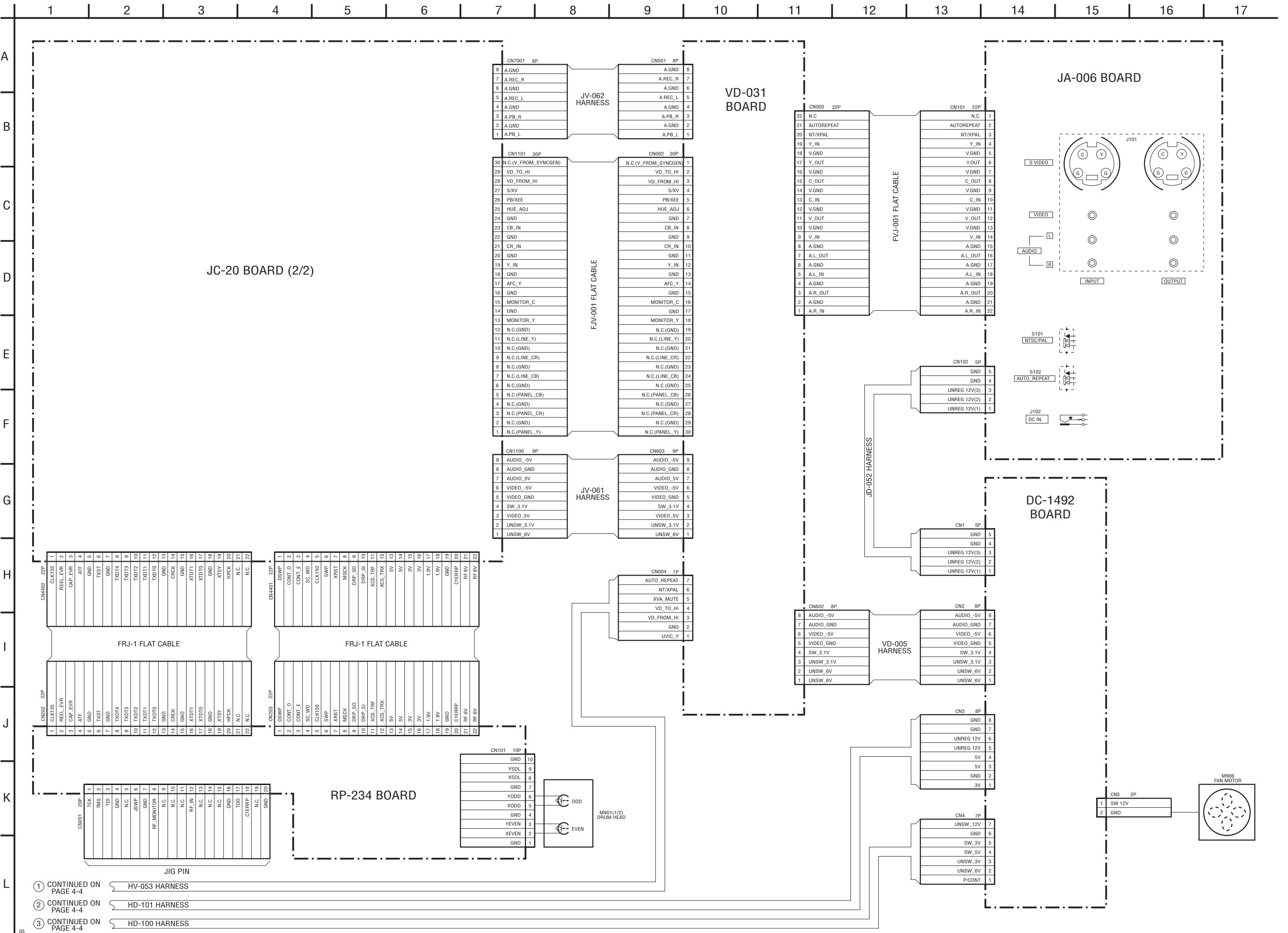
Les composants identifiés par une marque  sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

4-3



FRAME SCHEMATIC DIAGRAM (2/2)

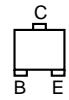


4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

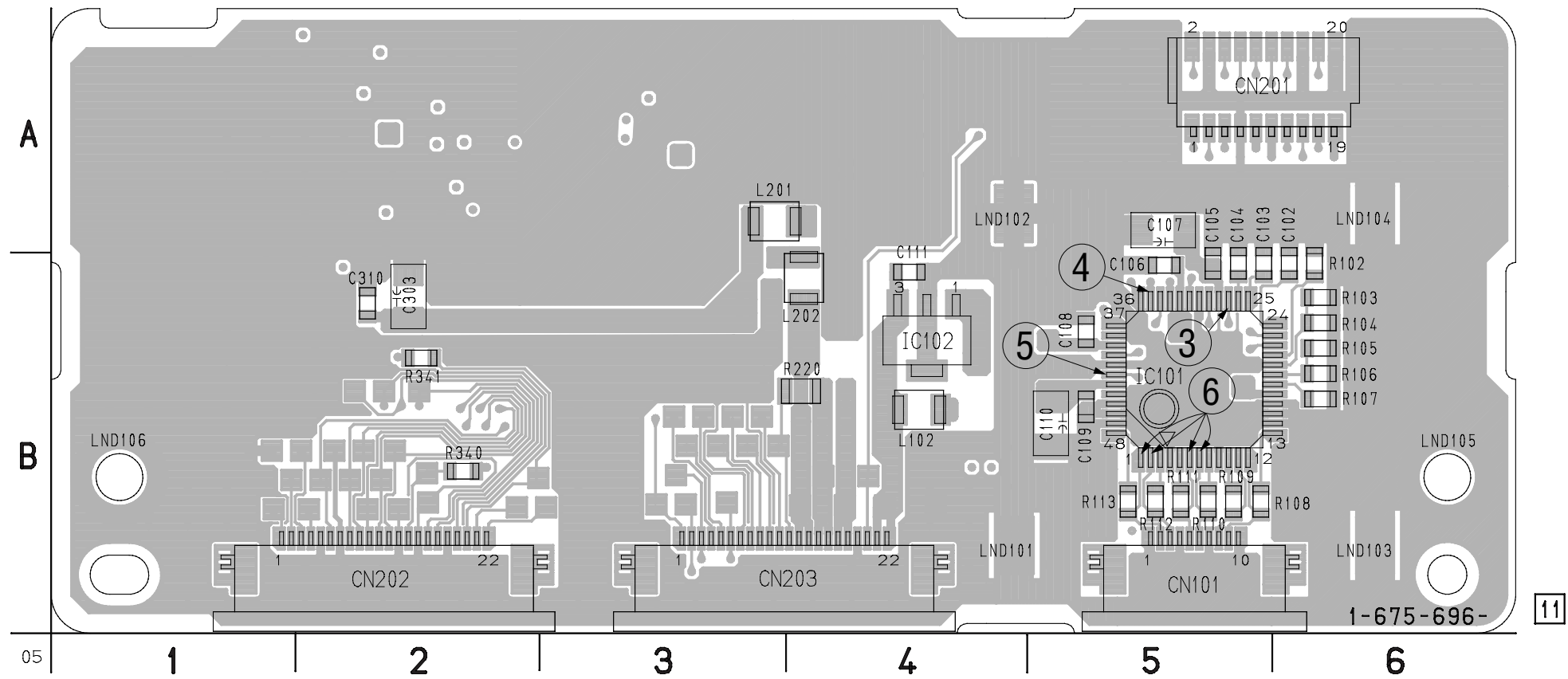
RP-234 (REC/PB AMP) PRINTED WIRING BOARD

– Ref. No.: RP-234 board; 30,000 series –

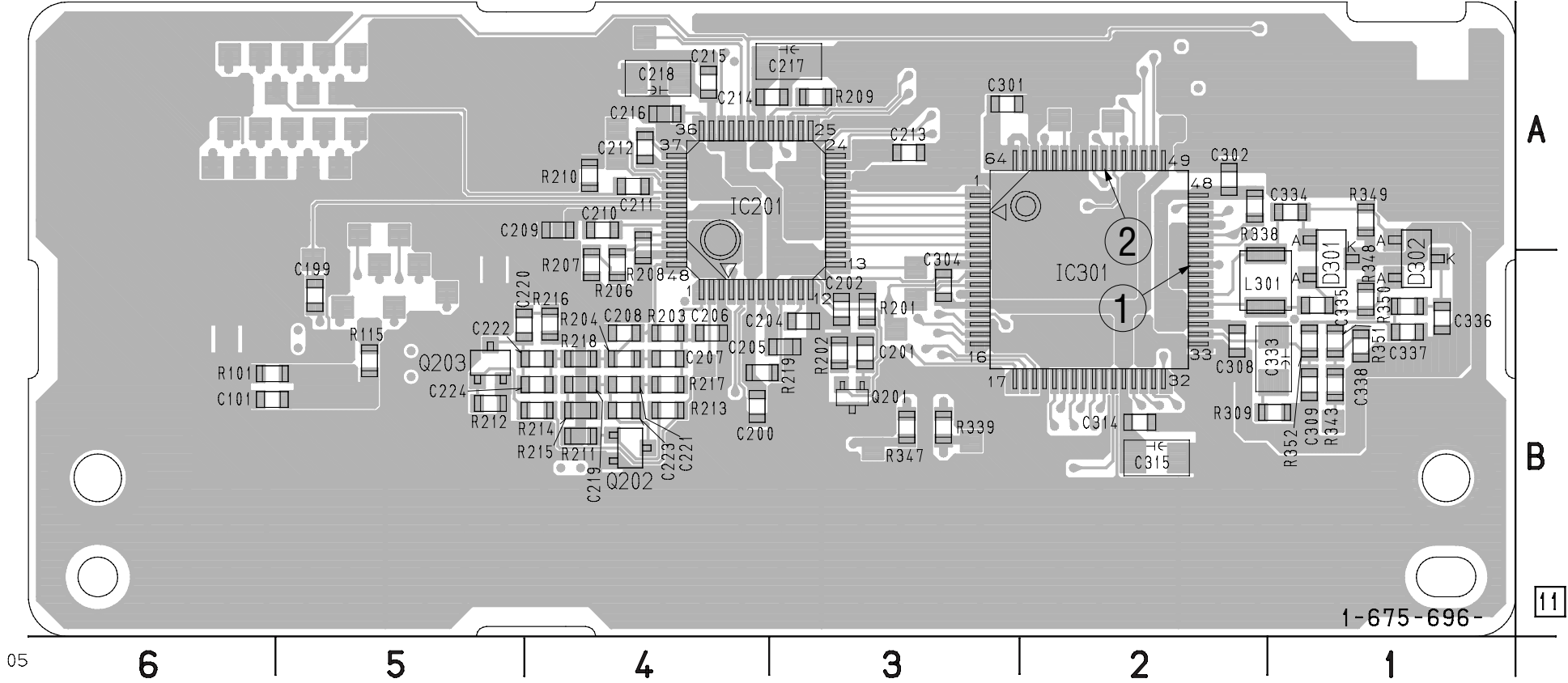
- For Printed Wiring Board.
- RP-234 board is six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-99 for printed parts location.
- Chip transistor



RP-234 BOARD (SIDE A)

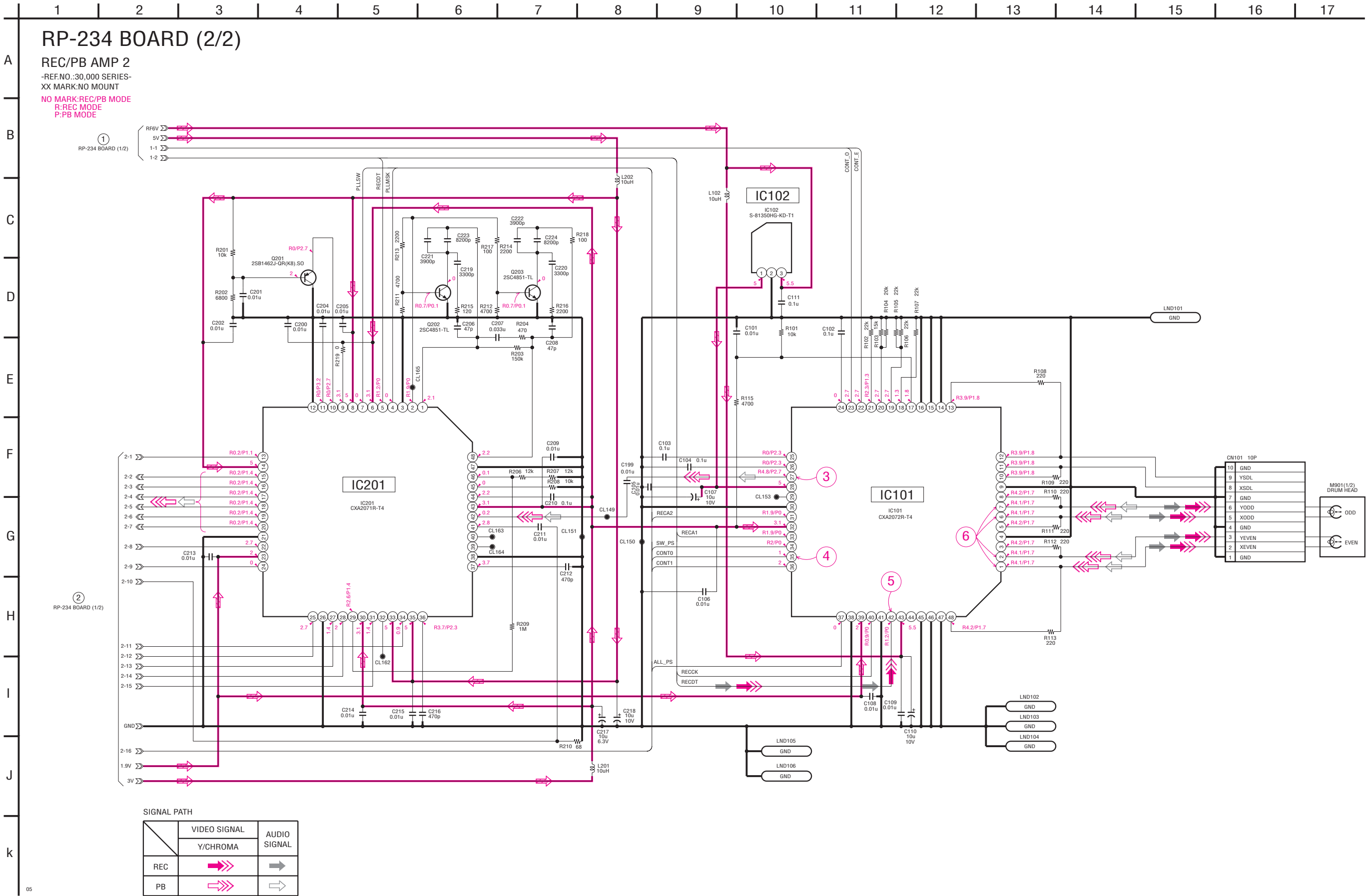


RP-234 BOARD(SIDE B)





RP-234 (REC/PB AMP 2) SCHEMATIC DIAGRAM • See page 4-7 for RP-234 printed wiring board. • See page 4-95 for waveforms.

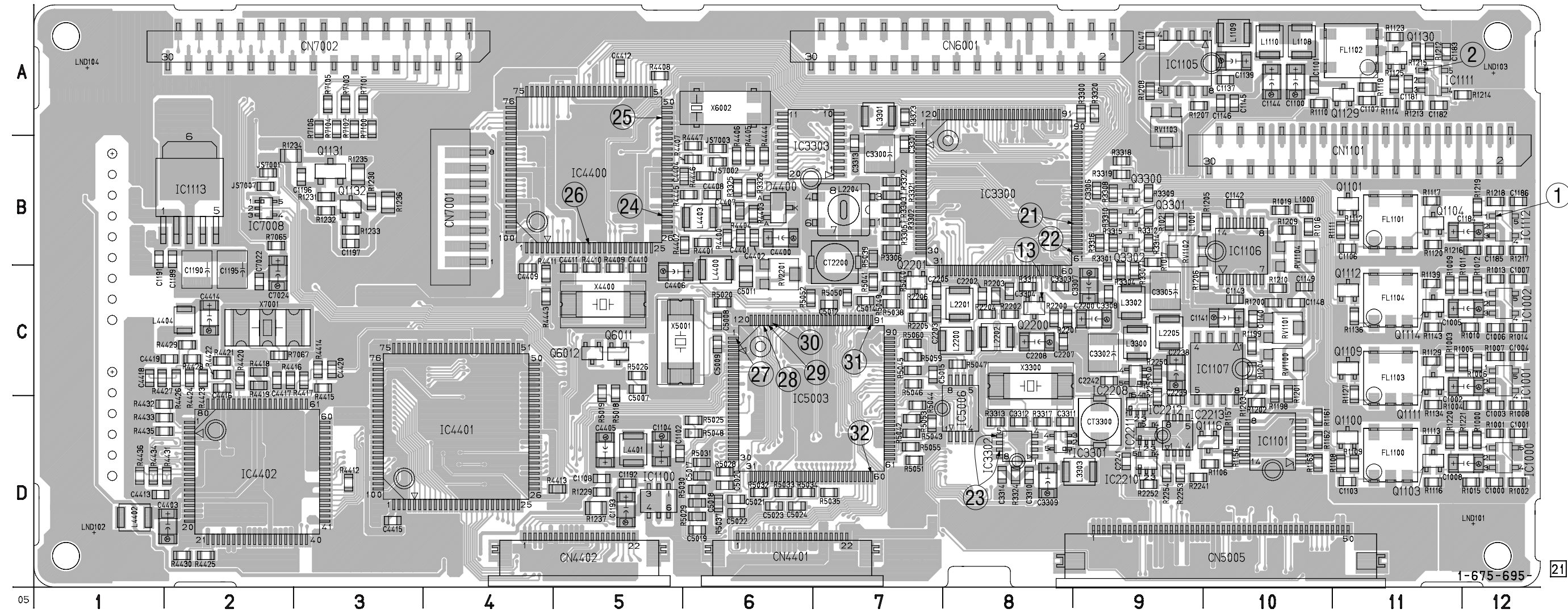


JC-20 (VIDEO PB AMP, VIDEO A/D CONVERTER, CHROMA MIX, AFC, VFD, SFD, TFD, DV INTERFACE, MECHANISM CONTROL, AUDIO, POWER SUPPLY) PRINTED WIRING BOARD
– Ref. No.: JC-20 board; 20,000 series –

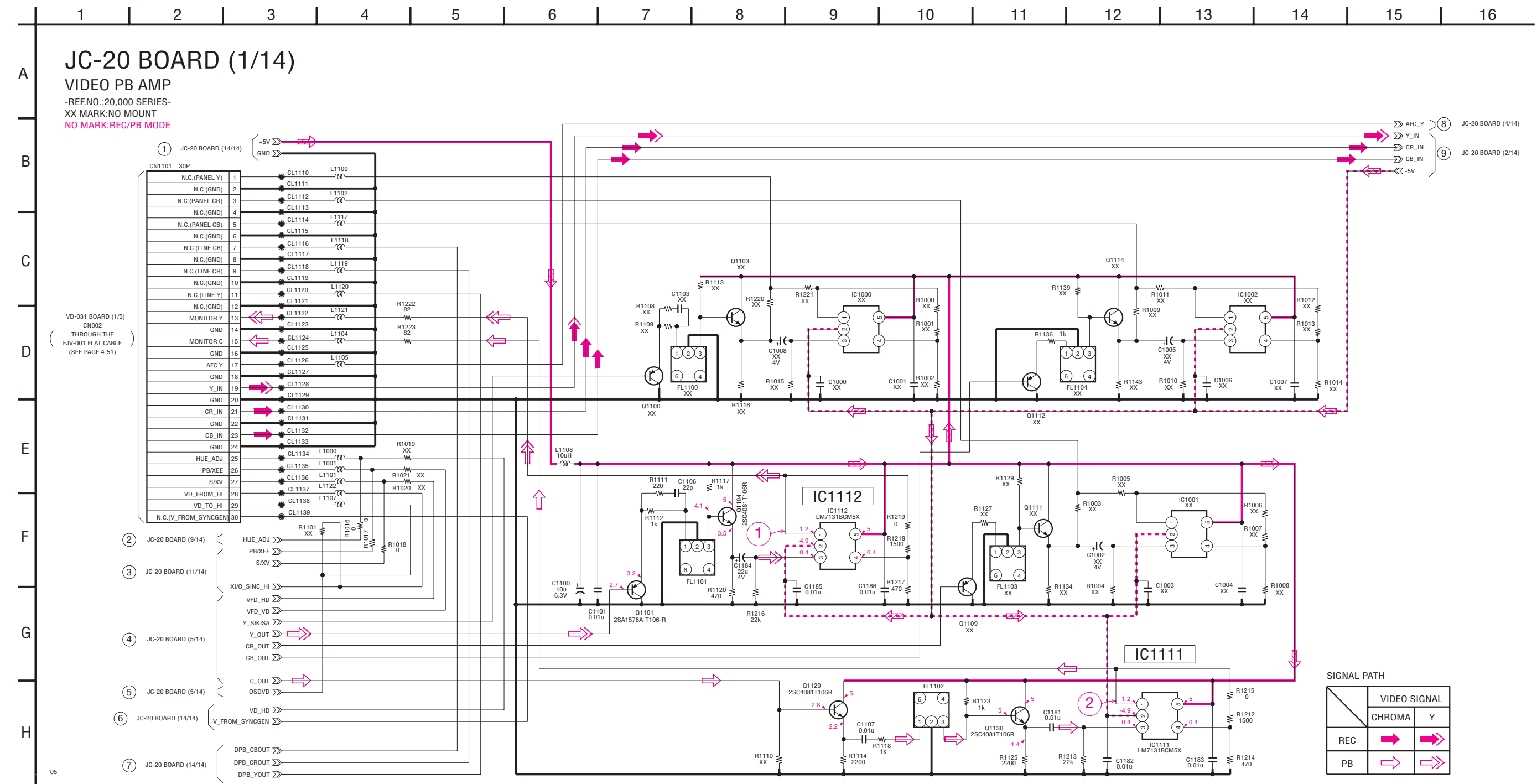
- For Printed Wiring Board.
- JC-20 board is six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-99 for printed parts location.
- Chip transistor



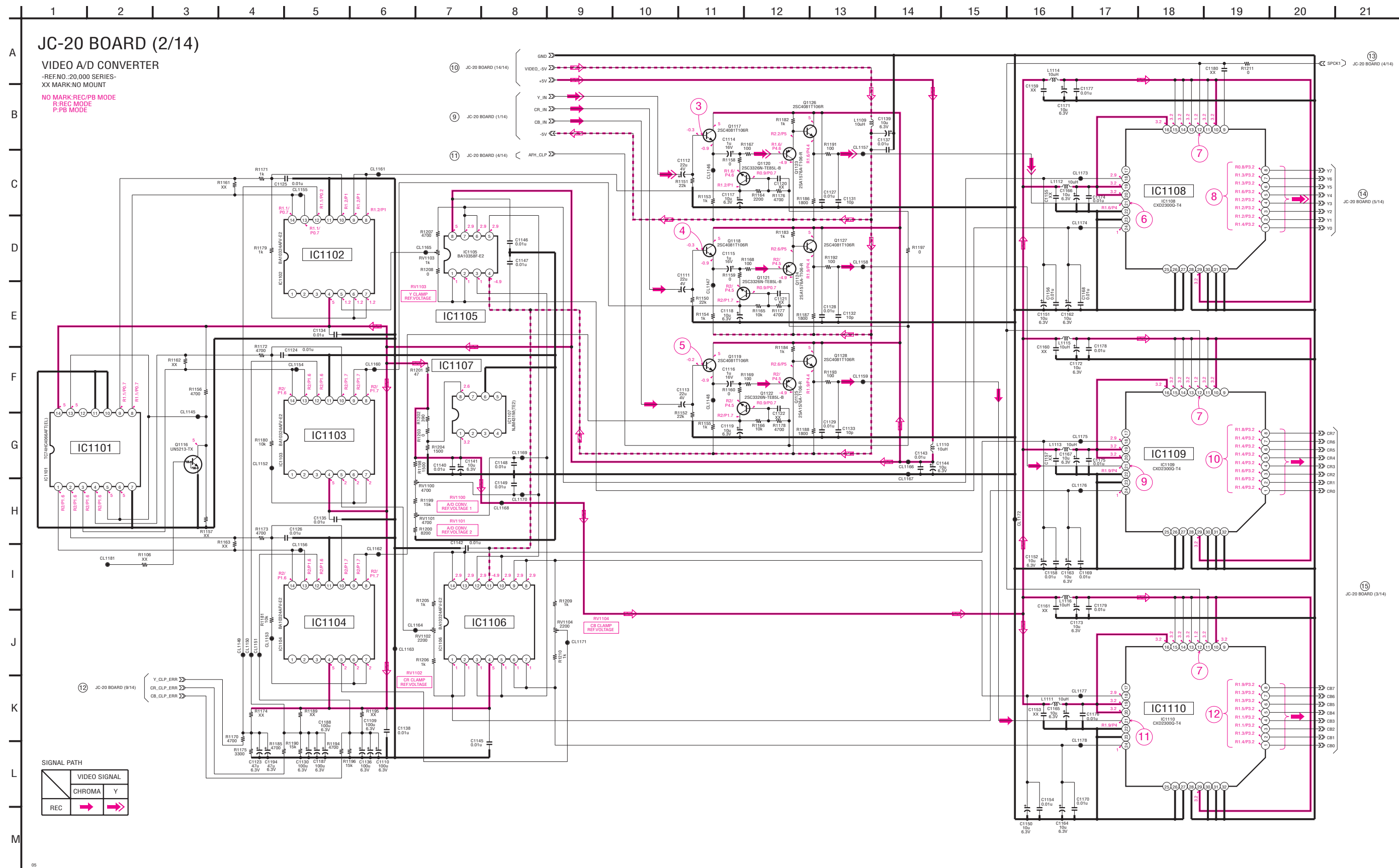
JC-20 BOARD (SIDE A)



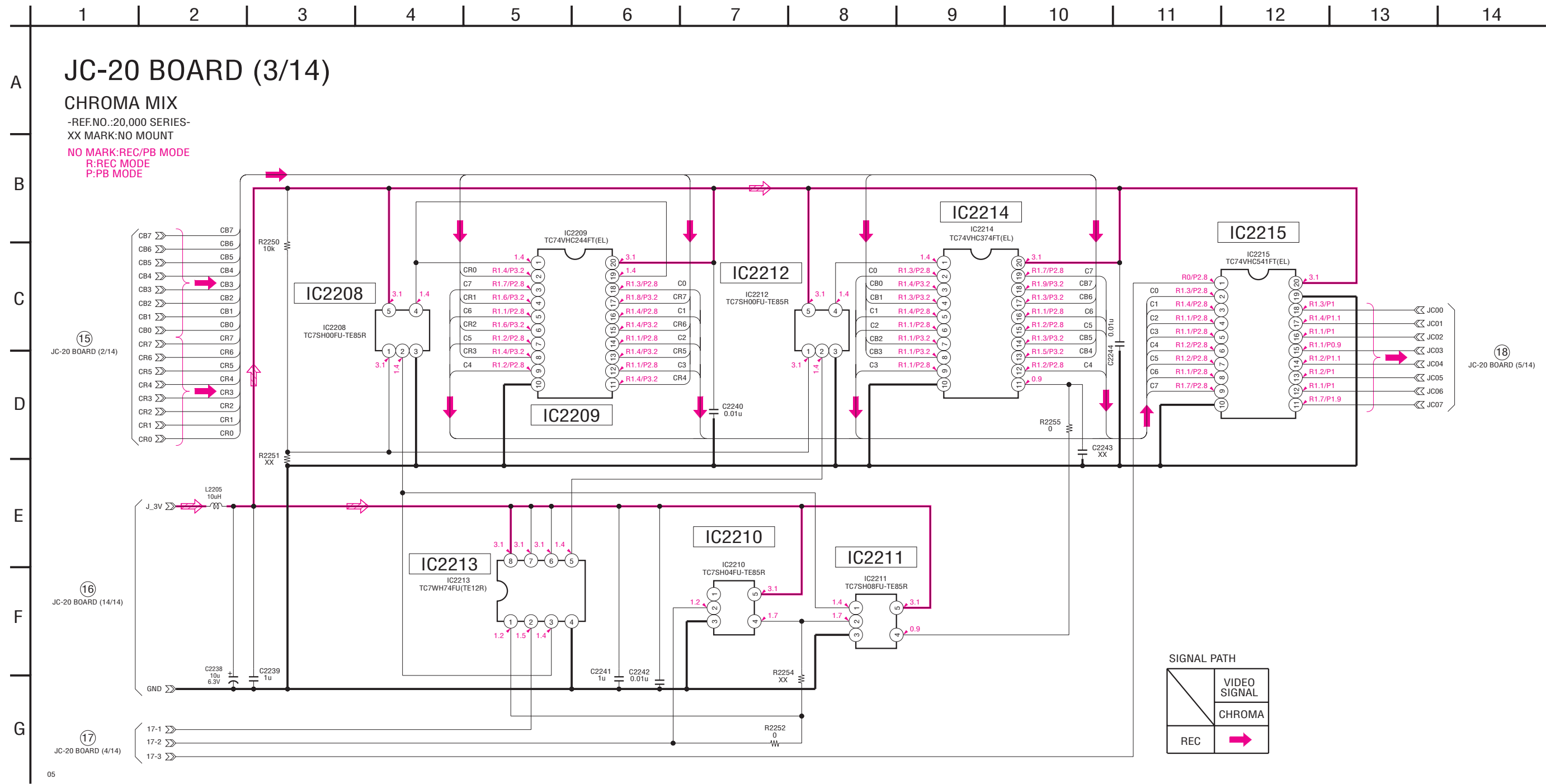
JC-20 (VIDEO PB AMP) SCHEMATIC DIAGRAM • See page 4-15 for JC-20 printed wiring board. • See page 4-95 for waveforms.



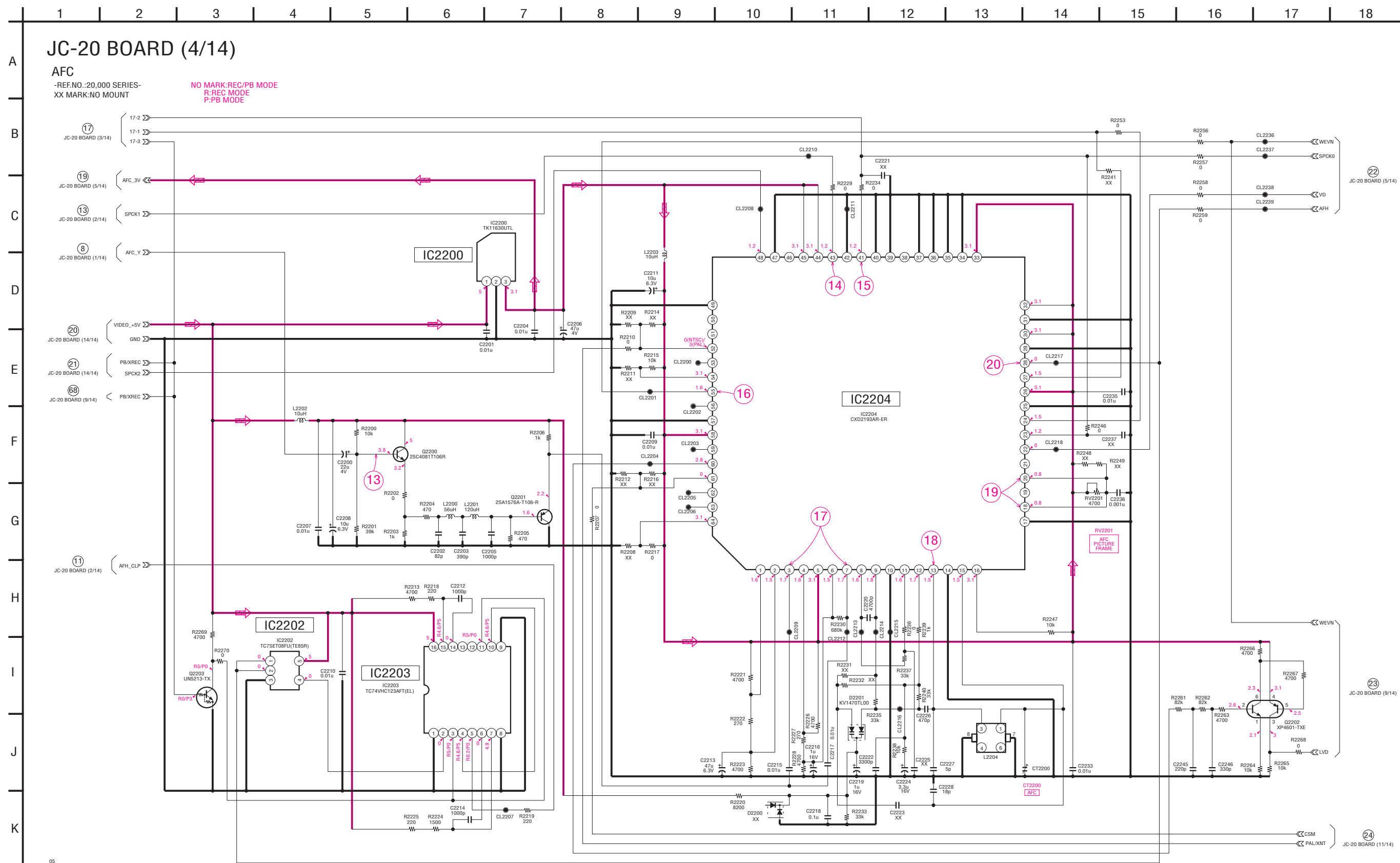
JC-20 (VIDEO A/D CONVERTER) SCHEMATIC DIAGRAM • See page 4-15 for JC-20 printed wiring board. • See page 4-95 for waveforms.



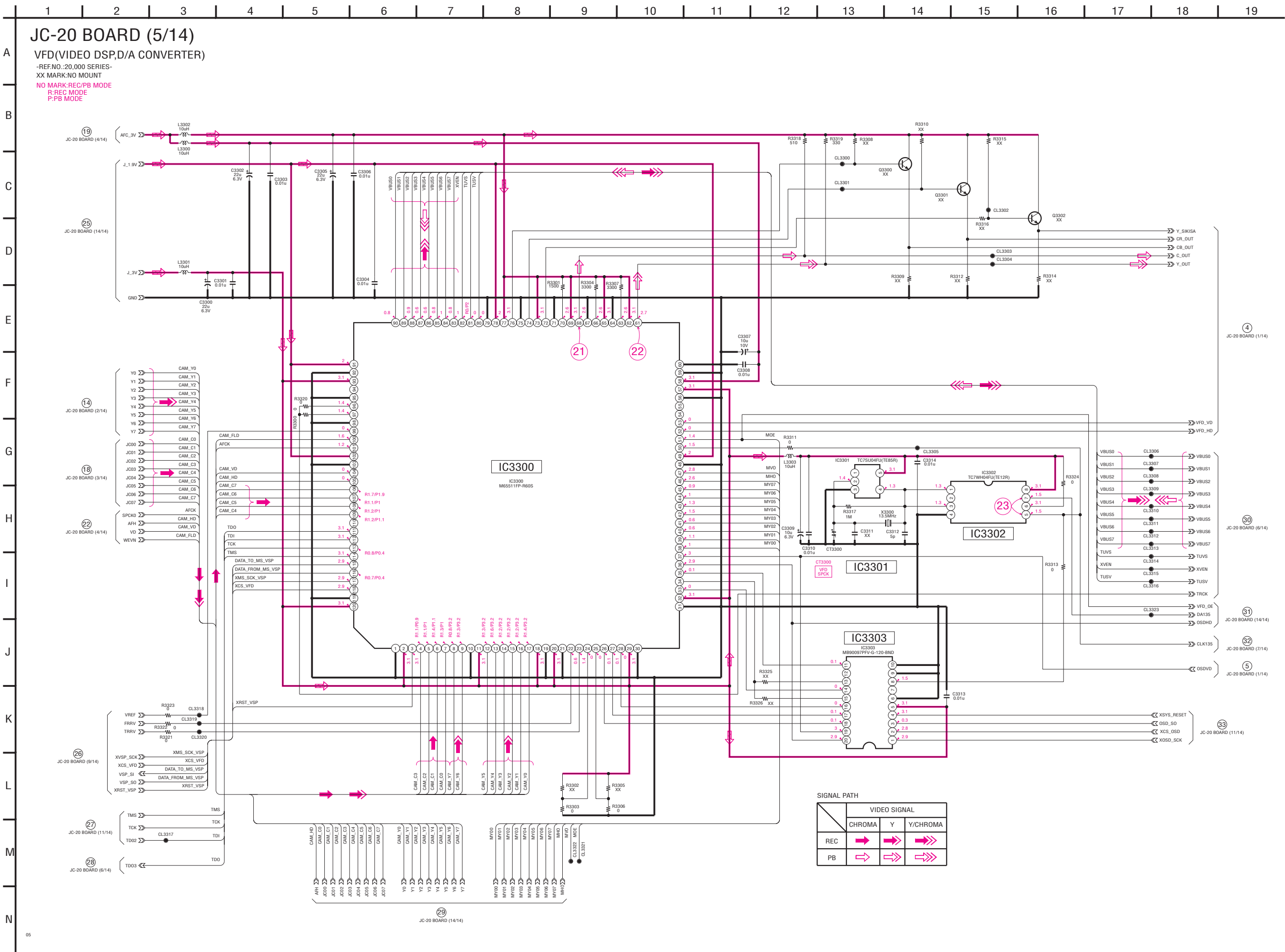
JC-20 (CHROMA MIX) SCHEMATIC DIAGRAM • See page 4-15 for JC-20 printed wiring board.

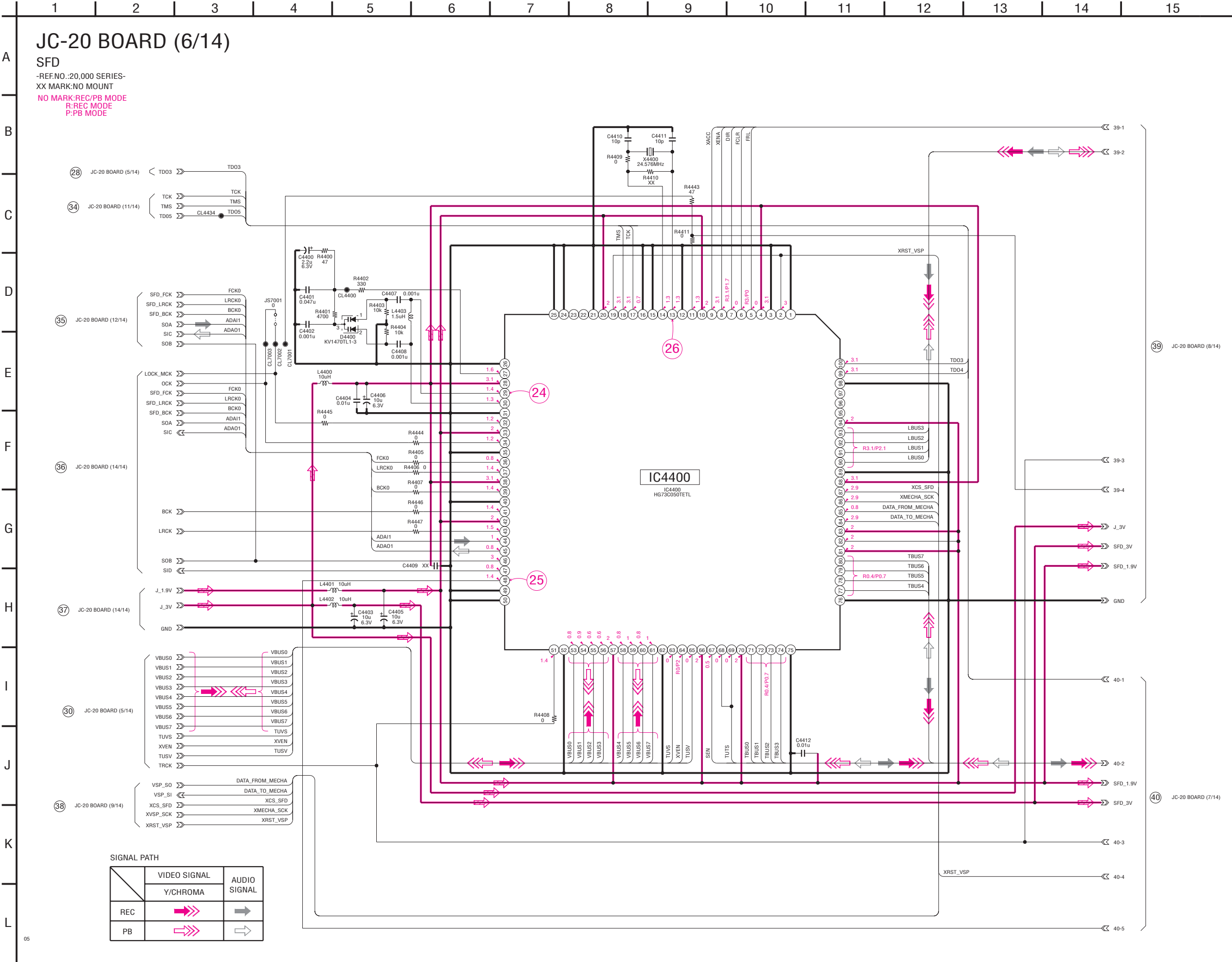


JC-20 (AFC) SCHEMATIC DIAGRAM • See page 4-15 for JC-20 printed wiring board. • See page 4-95, 96 for waveforms.



JC-20 (VFD (VIDEO DSP, D/A CONVERTER)) SCHEMATIC DIAGRAM • See page 4-15 for JC-20 printed wiring board. • See page 4-96 for waveforms.



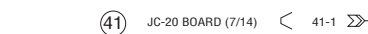


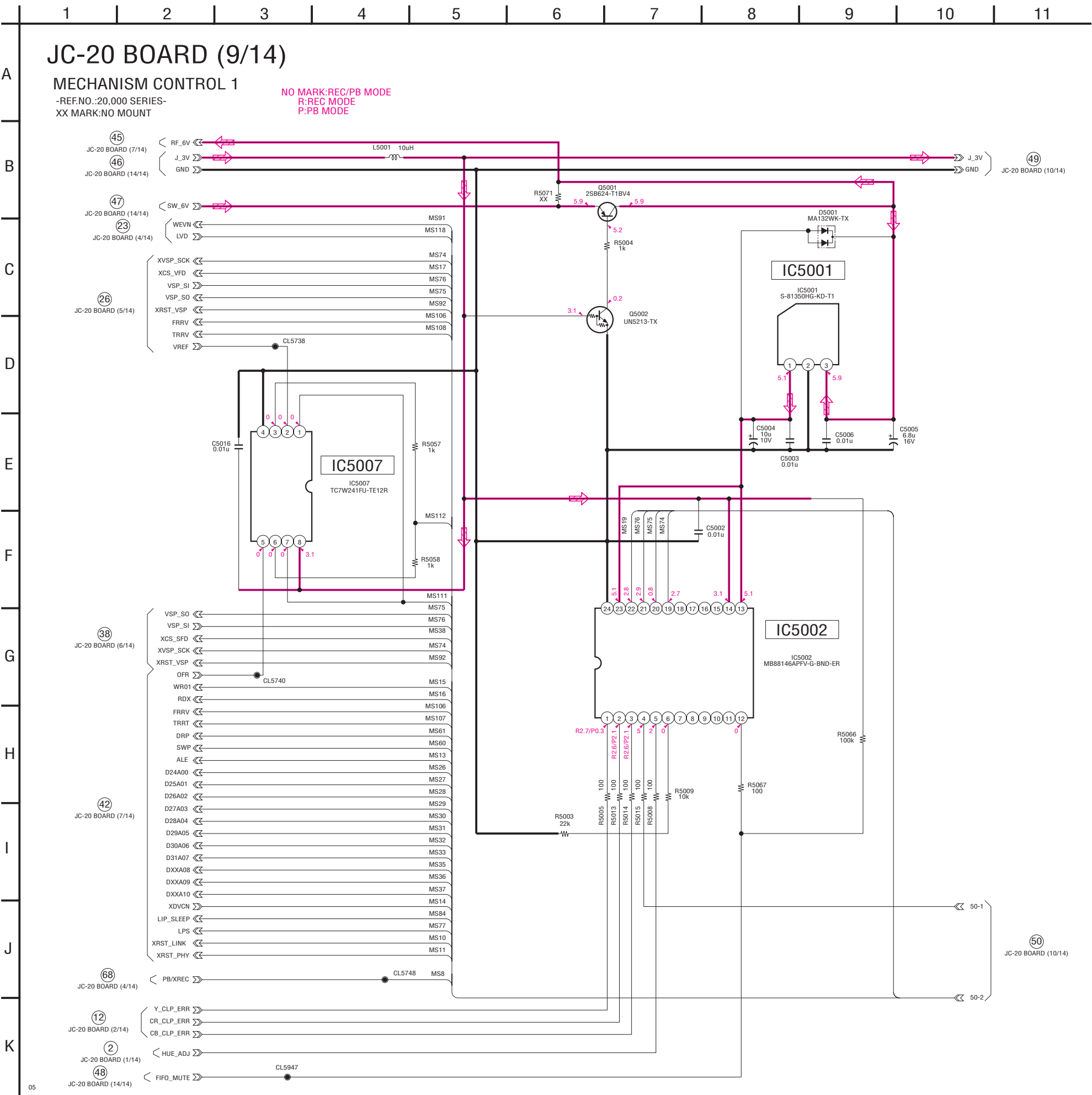


A JC-20 BOARD (8/14)

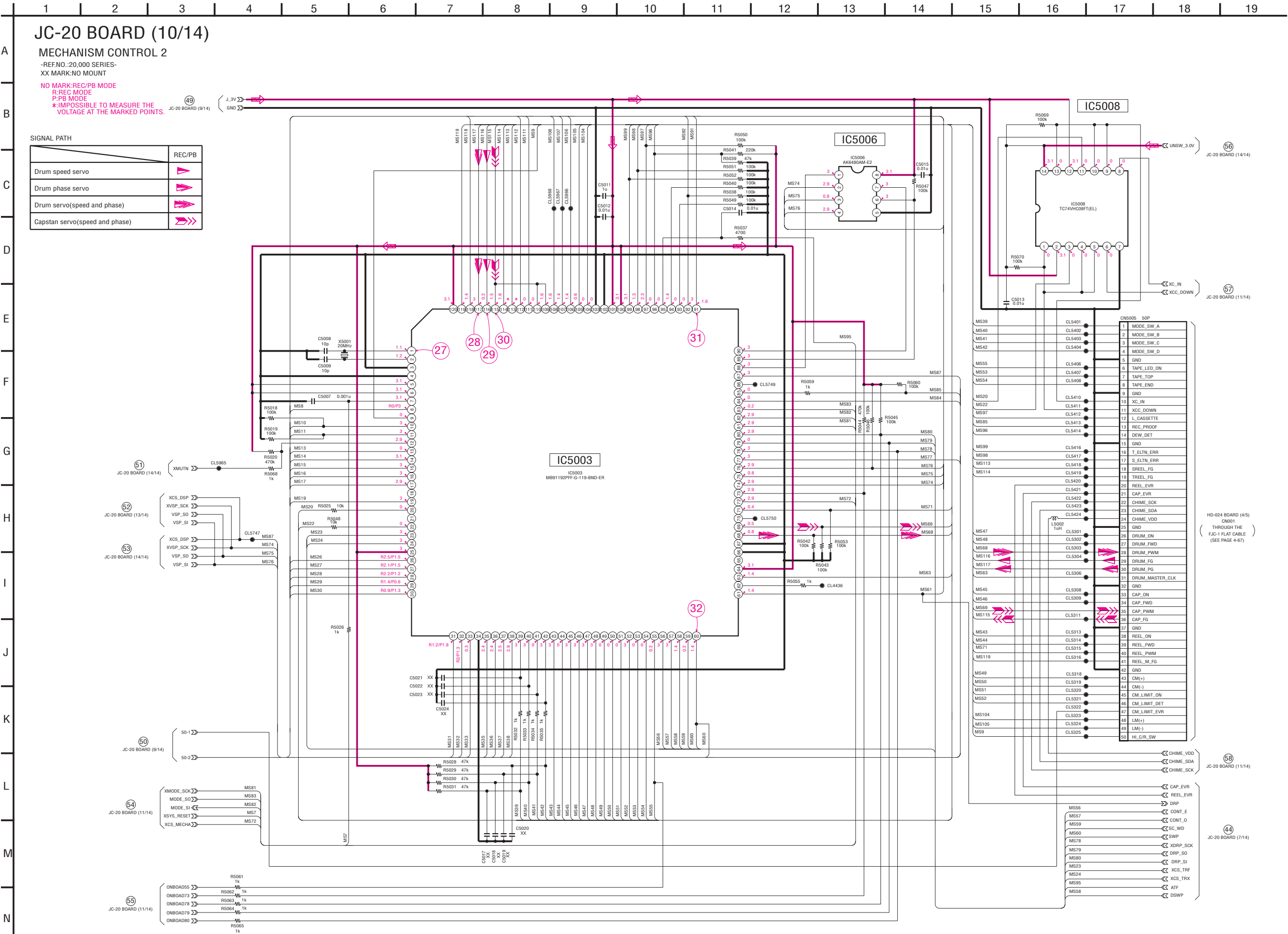
-REF.NO.:20,000 SERIES-
XX MARK:NO MOUNT

39 JC-20 BOARD (6/14)

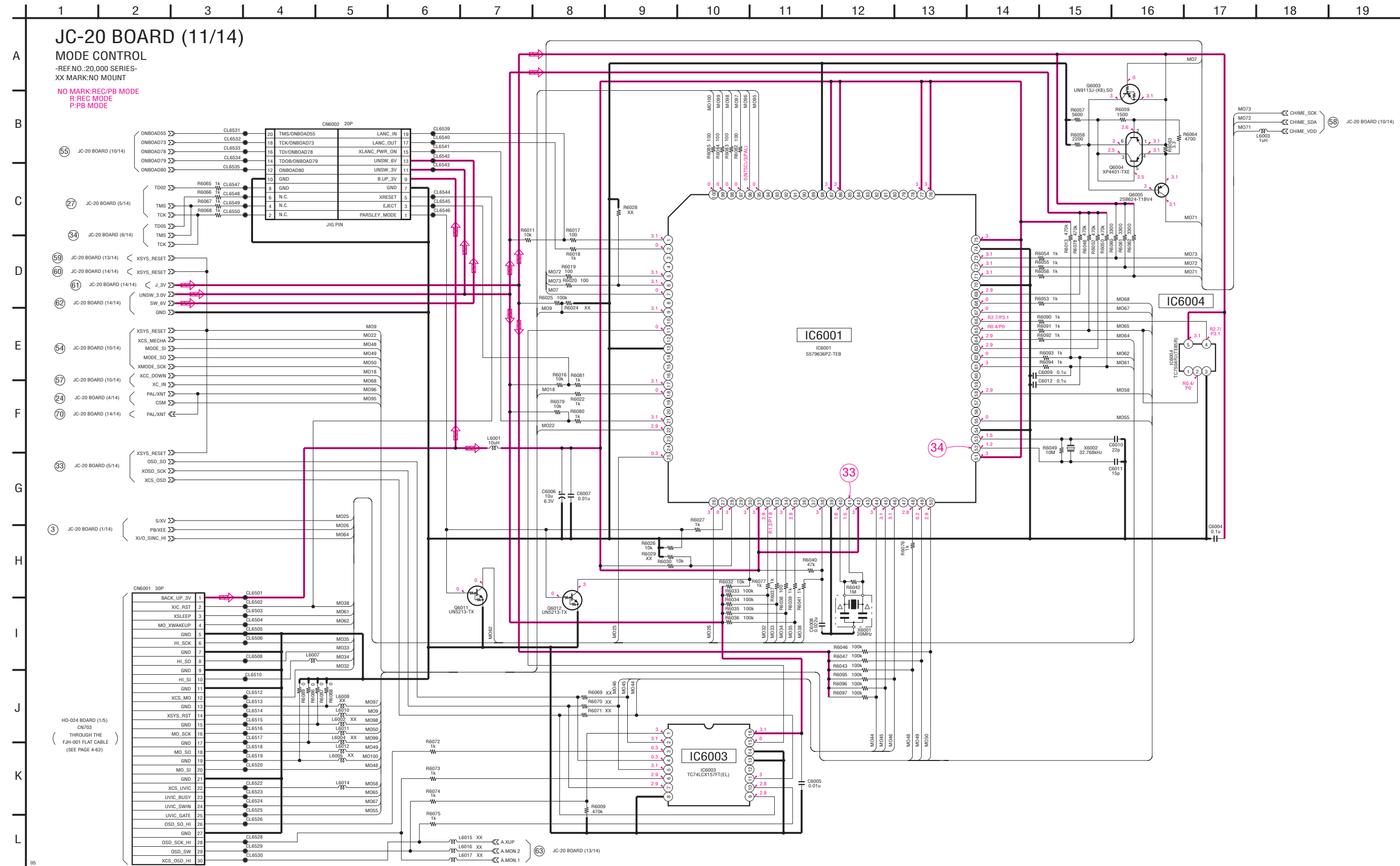




JC-20 (MECHANISM CONTROL 2) SCHEMATIC DIAGRAM • See page 4-15 for JC-20 printed wiring board. • See page 4-96 for waveforms.



JC-20 (MODE CONTROL) SCHEMATIC DIAGRAM • See page 4-15 for JC-20 printed wiring board. • See page 4-96 for waveforms.



A JC-20 BOARD (12/14)
AUDIO 1



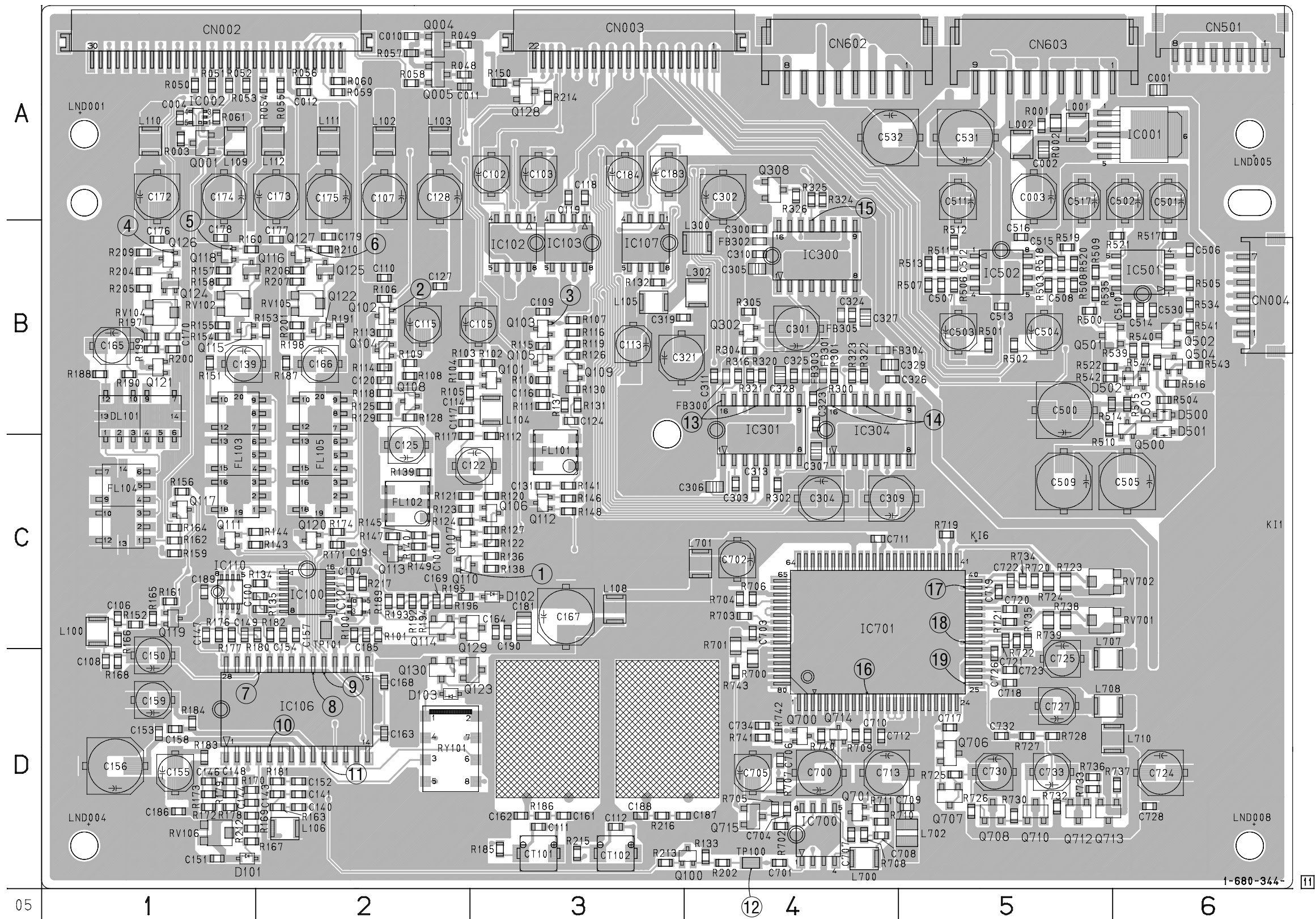




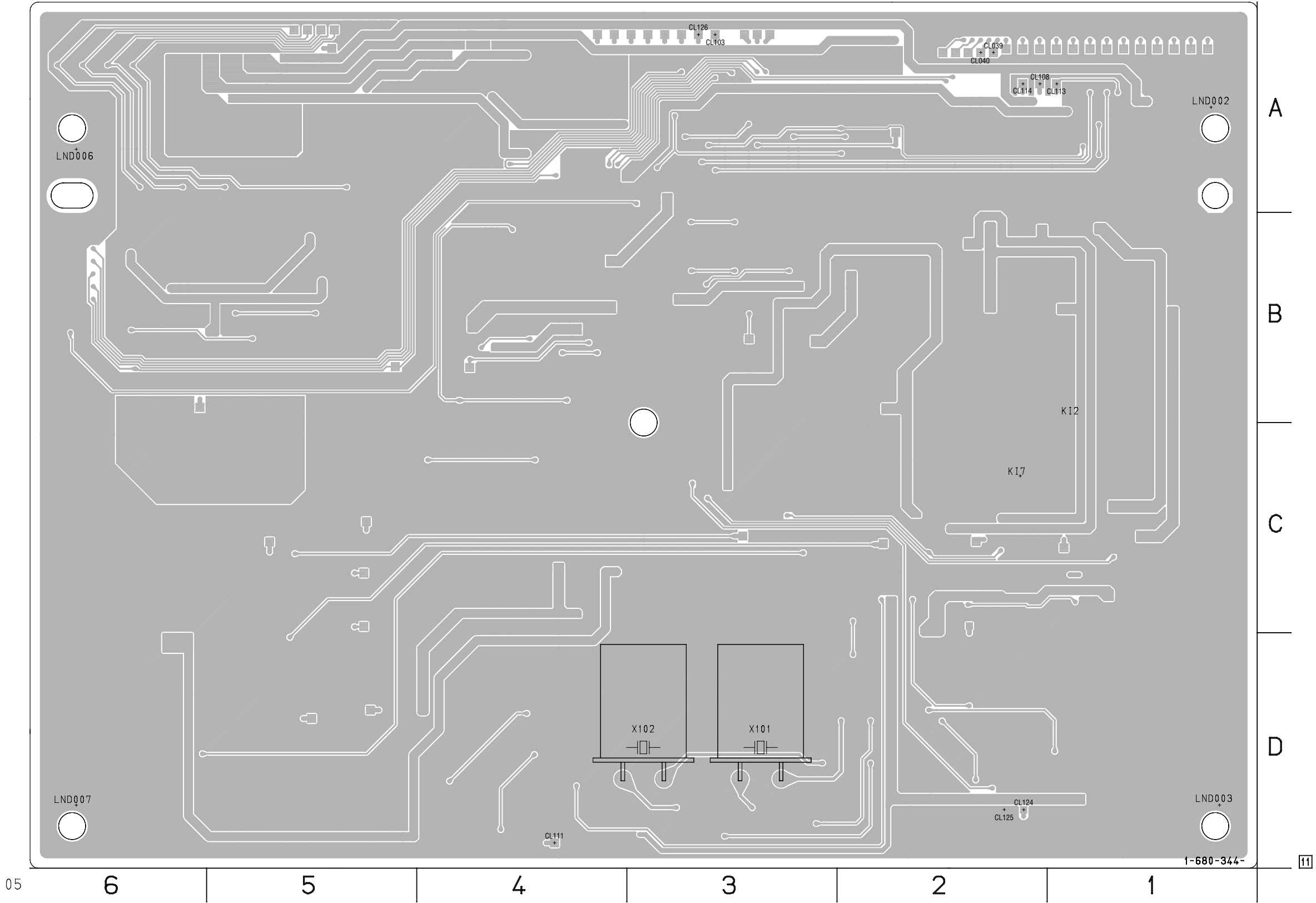
- **For Printed Wiring Board.**
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-99 for printed parts location.
- Chip transistor



VD-031 BOARD (SIDE A)

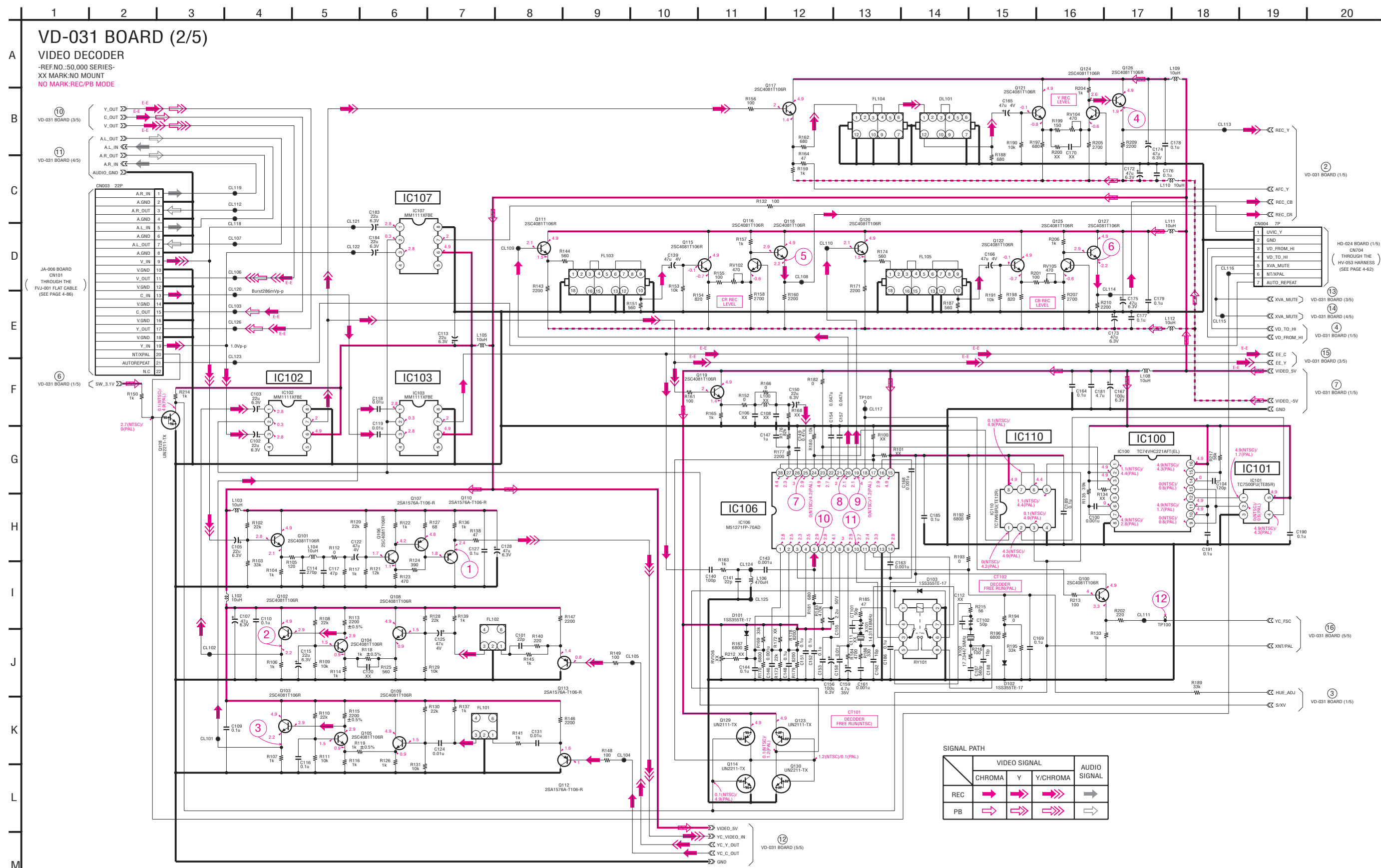


VD-031 BOARD(SIDE B)

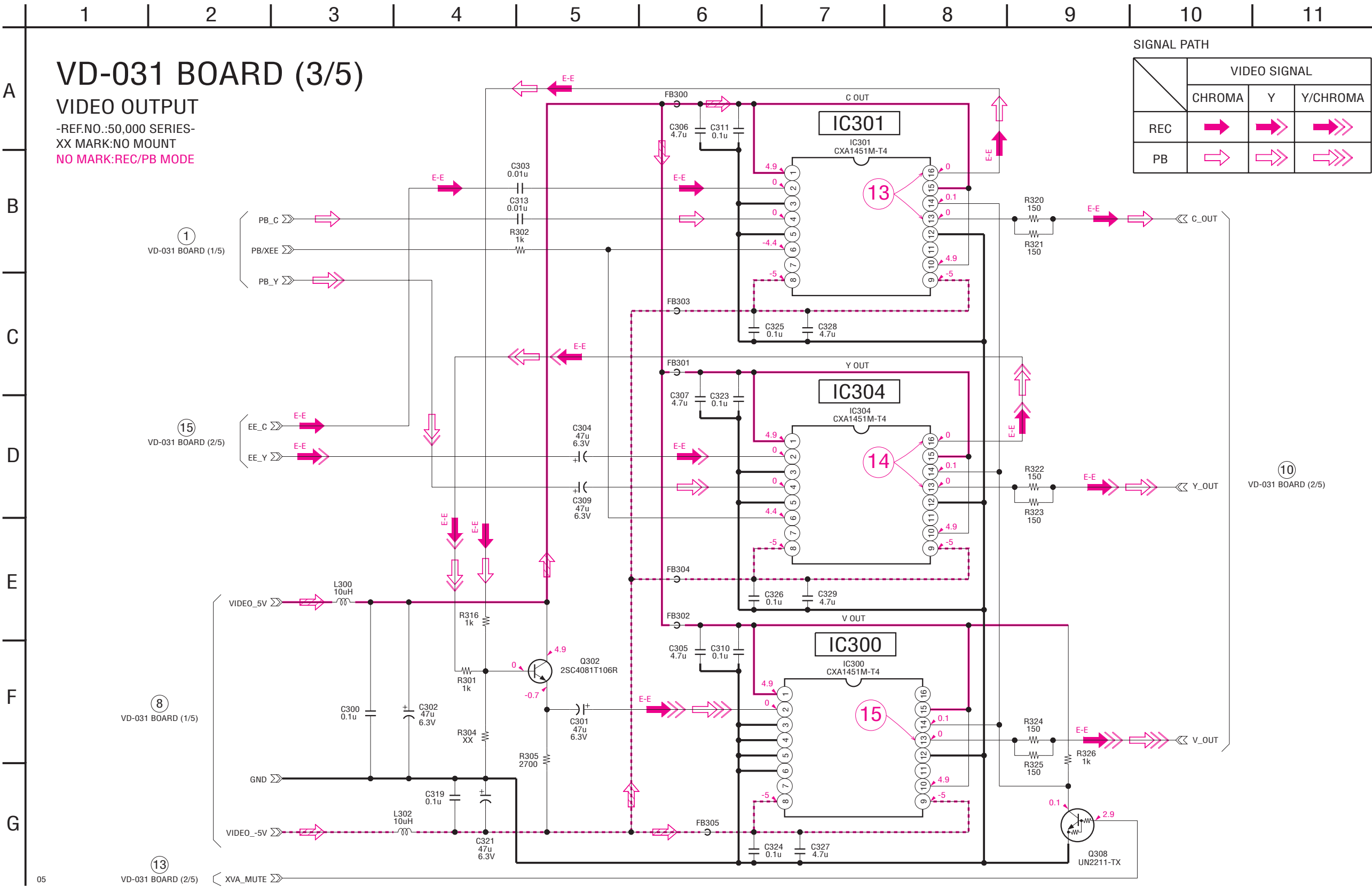




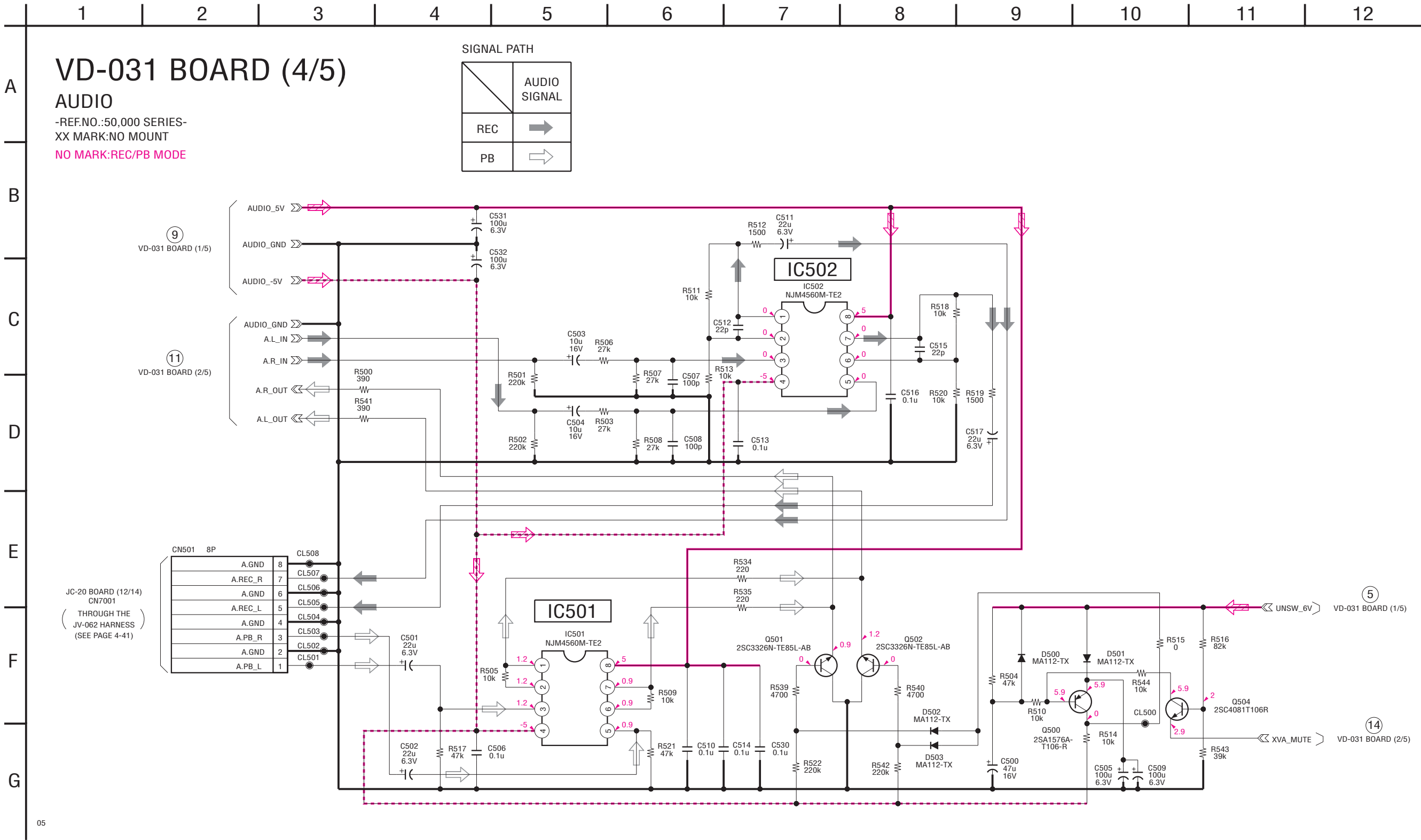
VD-031 (VIDEO DECODER) SCHEMATIC DIAGRAM • See page 4-47 for VD-031 printed wiring board. • See page 4-97 for waveforms.



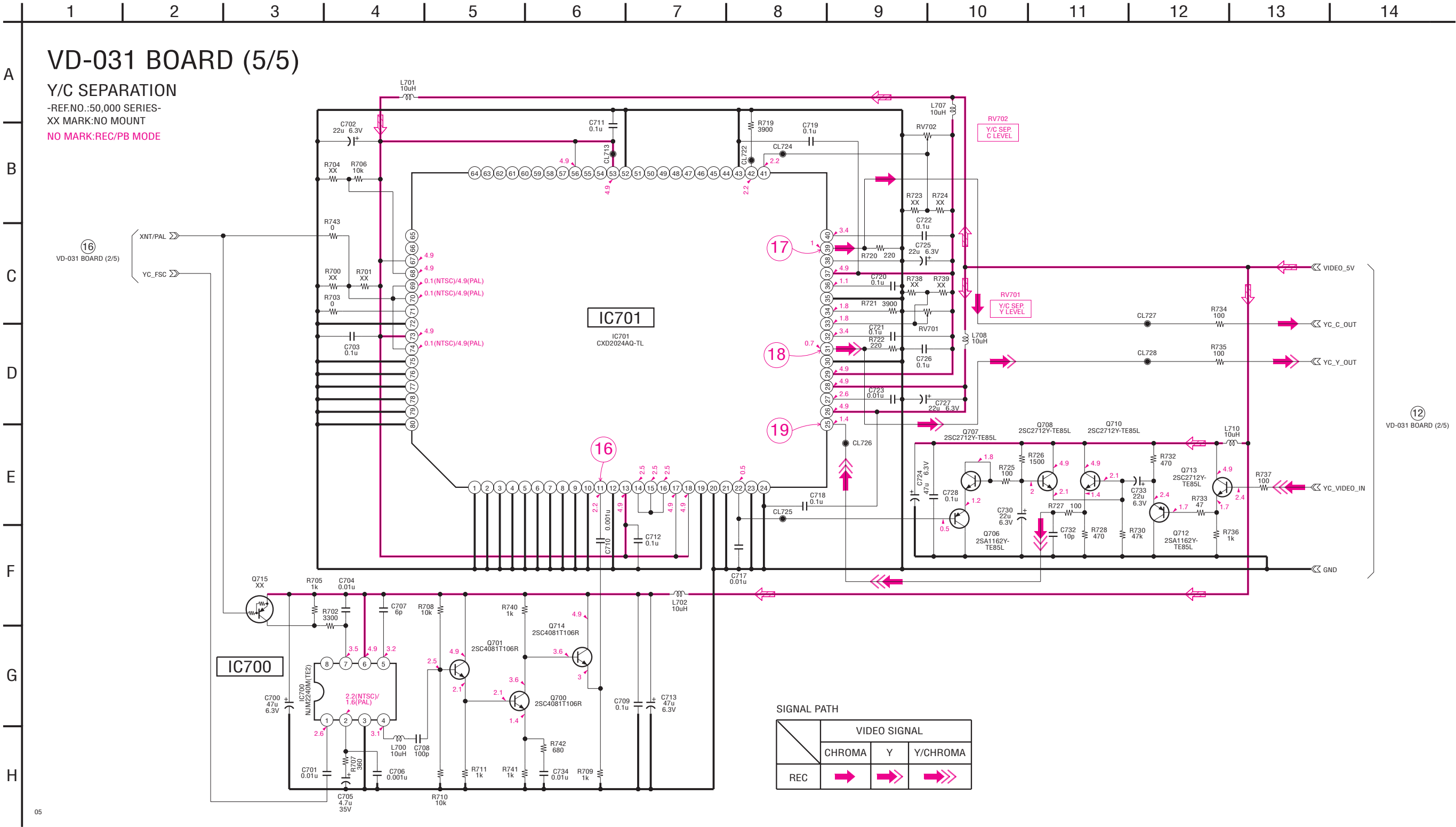
VD-031 (VIDEO OUTPUT) SCHEMATIC DIAGRAM • See page 4-47 for VD-031 printed wiring board. • See page 4-97 for waveforms.



VD-031 (AUDIO) SCHEMATIC DIAGRAM • See page 4-47 for VD-031 printed wiring board.



VD-031 (Y/C SEPARATION) SCHEMATIC DIAGRAM • See page 4-47 for VD-031 printed wiring board. • See page 4-97 for waveforms.

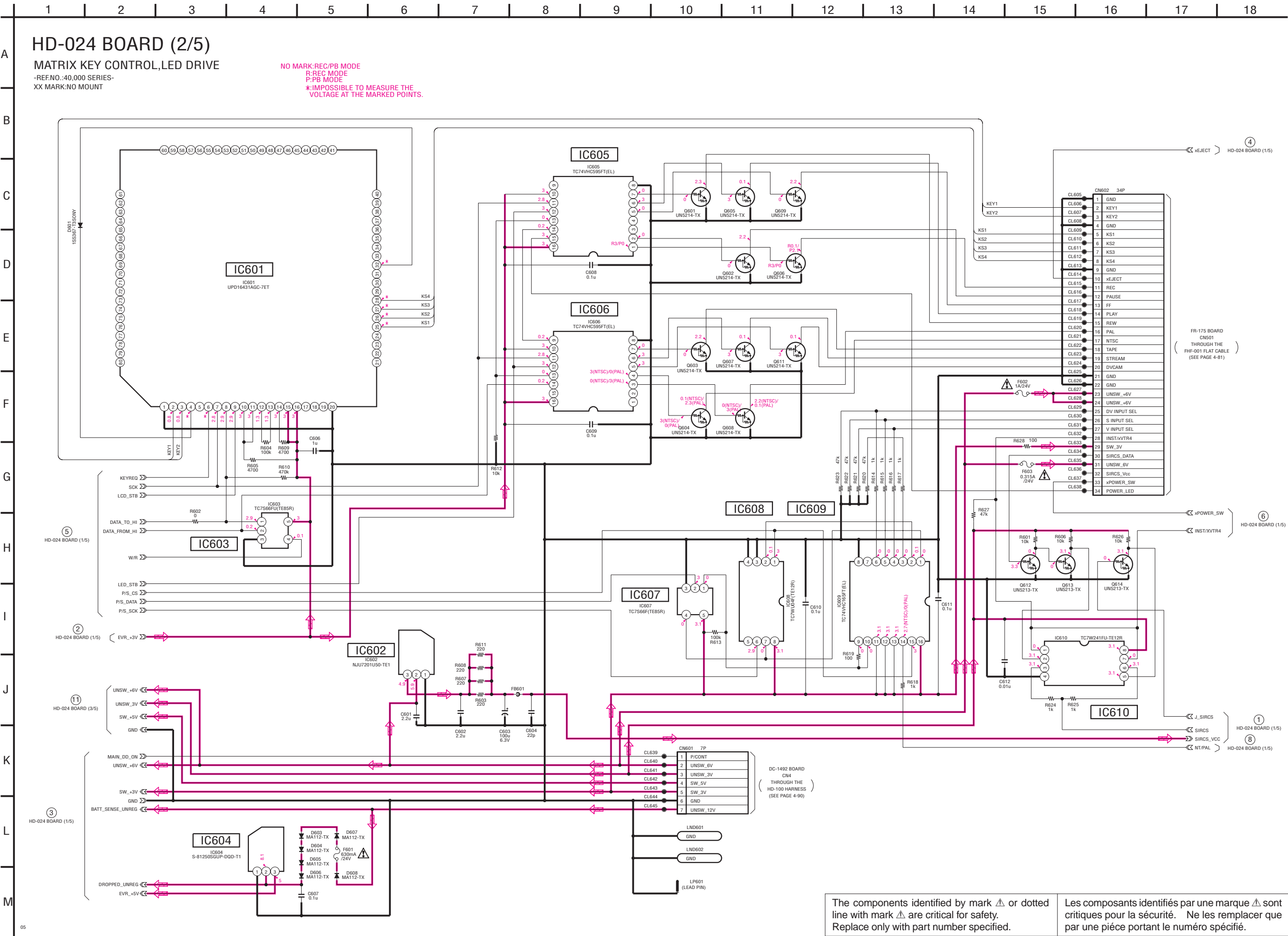


A | HD-024 BOARD (1/5)

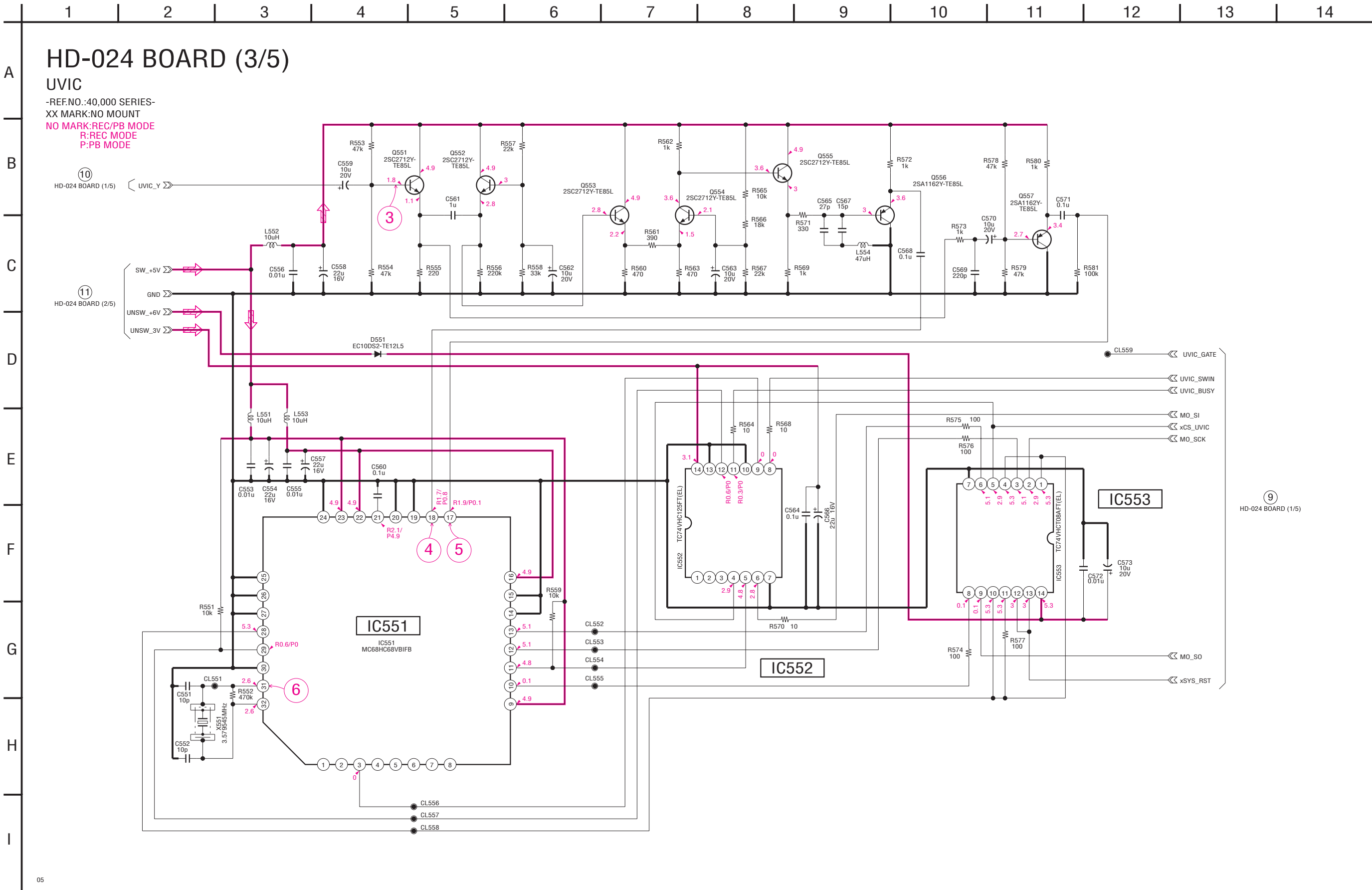
*.IMPOSSIBLE TO MEASURE THE VOLTAGE AT THE MARKED POINTS.

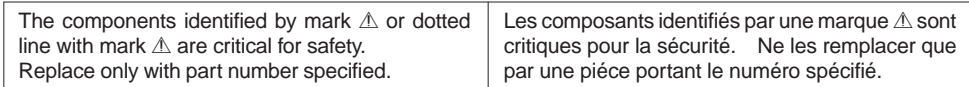


HD-024 (MATRIX KEY CONTROL, LED DRIVE) SCHEMATIC DIAGRAM • See page 4-71 for HD-024 printed wiring board.



HD-024 (UVIC) SCHEMATIC DIAGRAM • See page 4-71 for HD-024 printed wiring board. • See page 4-98 for waveforms.





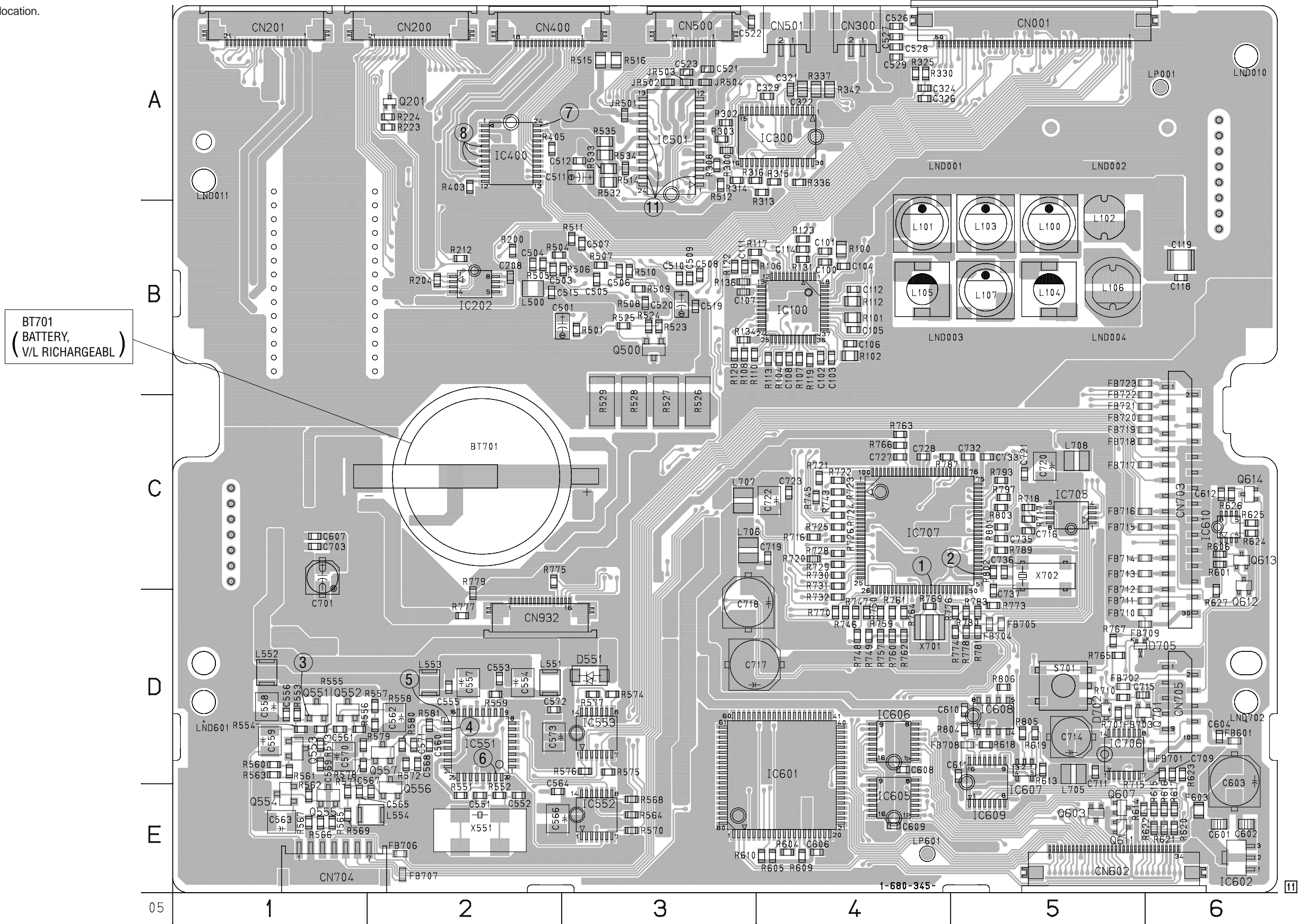
HD-024 (HI CONTROL, MATRIX KEY CONTROL, LED DRIVE, DC/DC CONVERTER, MOTOR DRIVE) PRINTED WIRING BOARD

– Ref. No.: HD-024 board; 40,000 series –

- For Printed Wiring Board.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-99 for printed parts location.
- Chip transistor

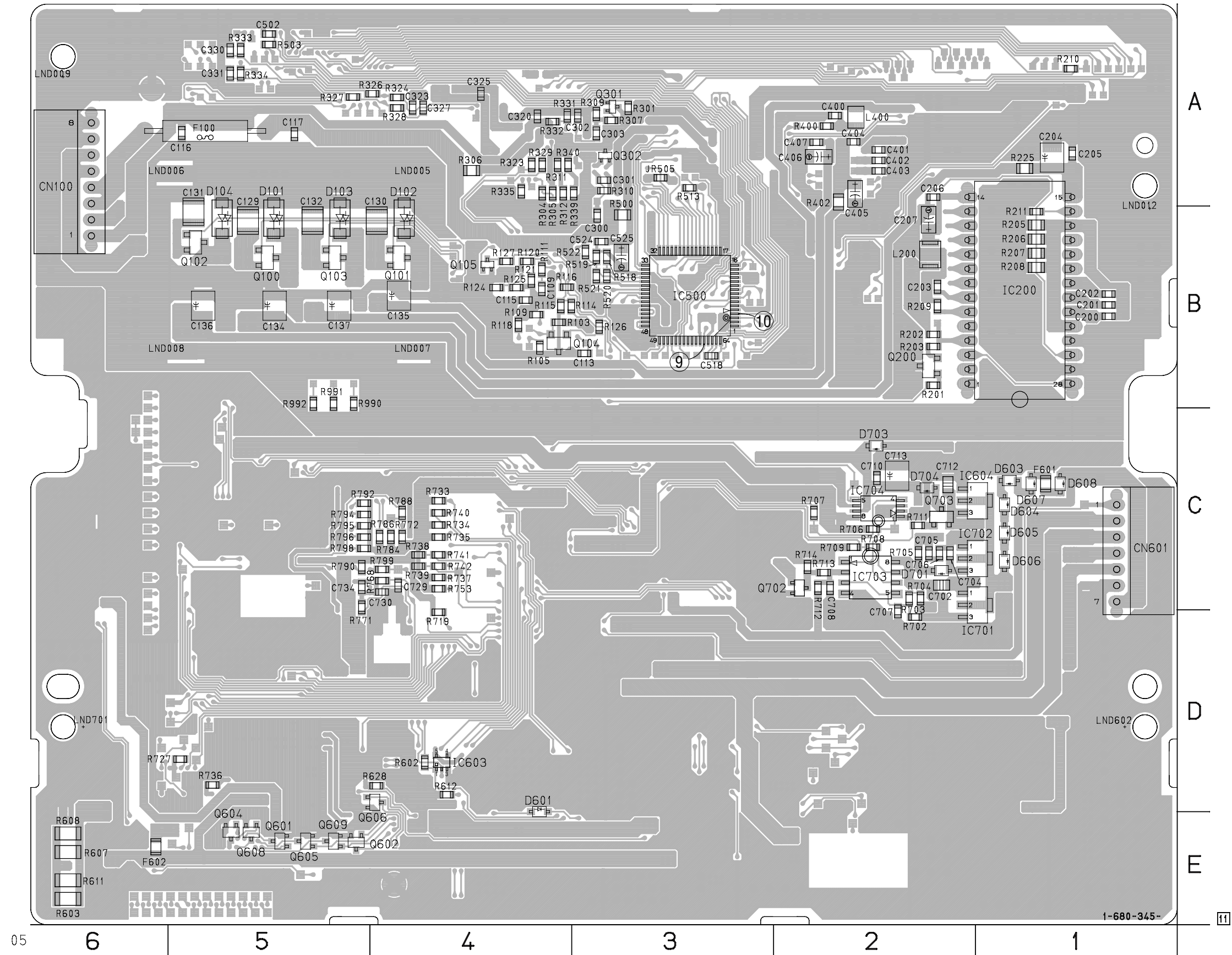


HD-024 BOARD (SIDE A)



BT701
(BATTERY,
V/L RICHARGEABL)

HD-024 BOARD (SIDE B)



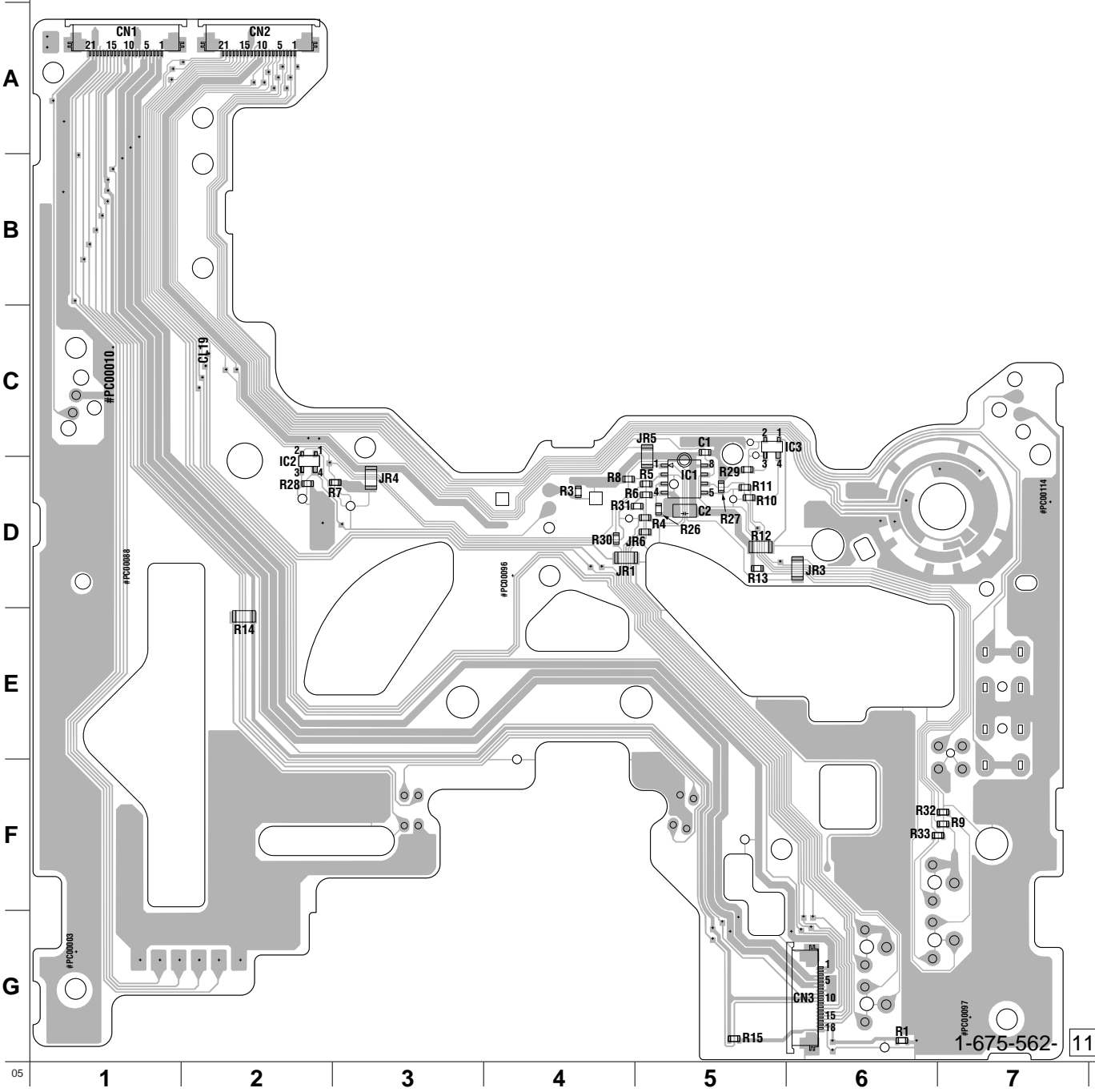
MD-76 (TAPE SENSOR) PRINTED WIRING BOARD

– Ref. No.: MD-76 board; 30,000 series –

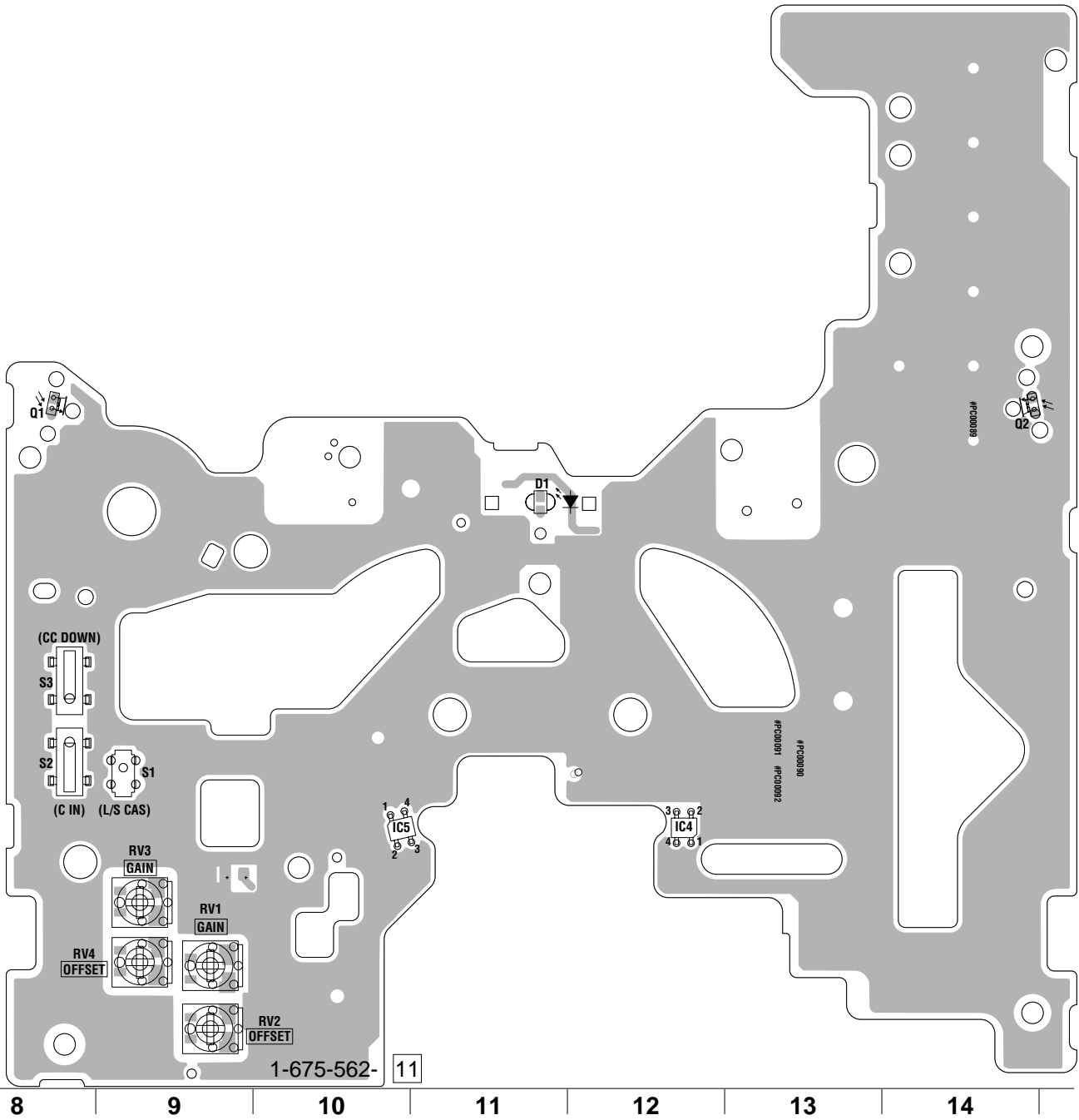
- For Printed Wiring Board.
- MD-76 board is four-layer print board. However, the patterns of layers 2 to 3 have not been included in the diagram.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-100 for printed parts location.
- Chip transistor



MD-76 BOARD (SIDE A)



MD-76 BOARD (SIDE B)



* : IMPOSSIBLE TO MEASURE THE VOLTAGE AT THE MARKED POINTS.



FR-175 (USER CONTROL) PRINTED WIRING BOARD

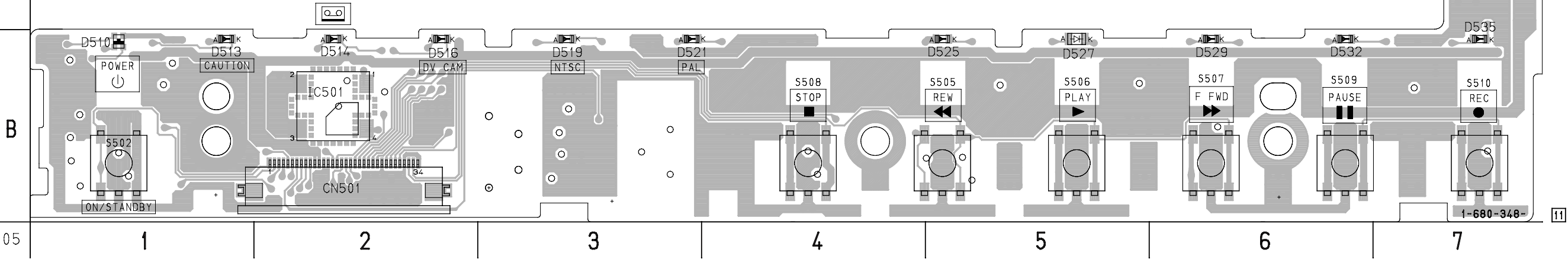
– Ref. No.: FR-157 board; 30,000 series –

- For Printed Wiring Board.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-100 for printed parts location.
- Chip transistor

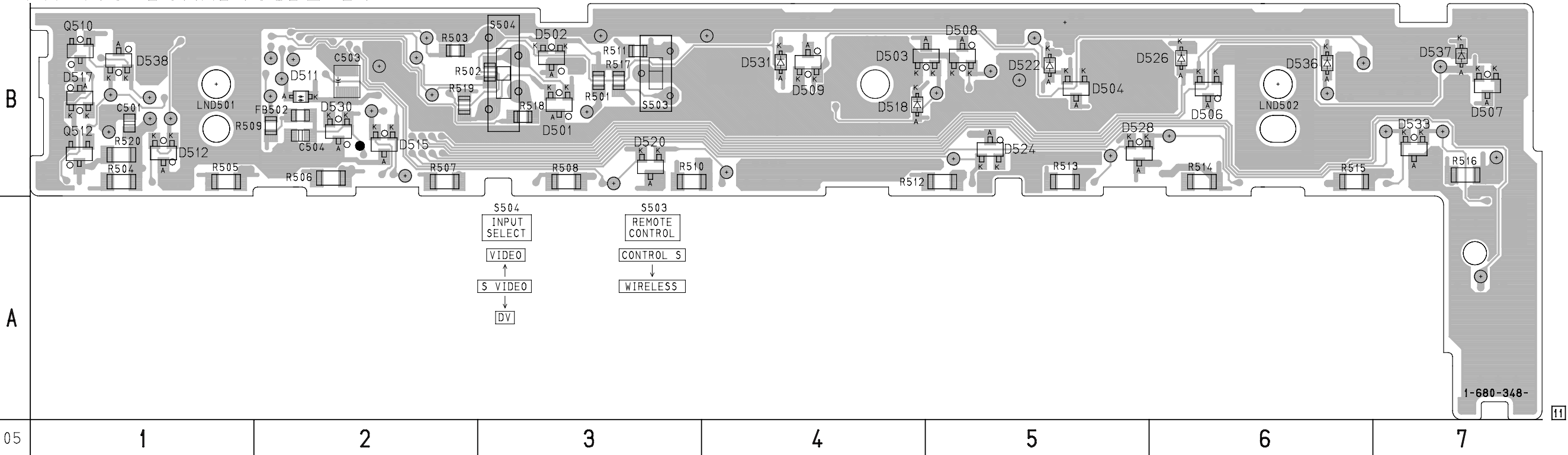


A

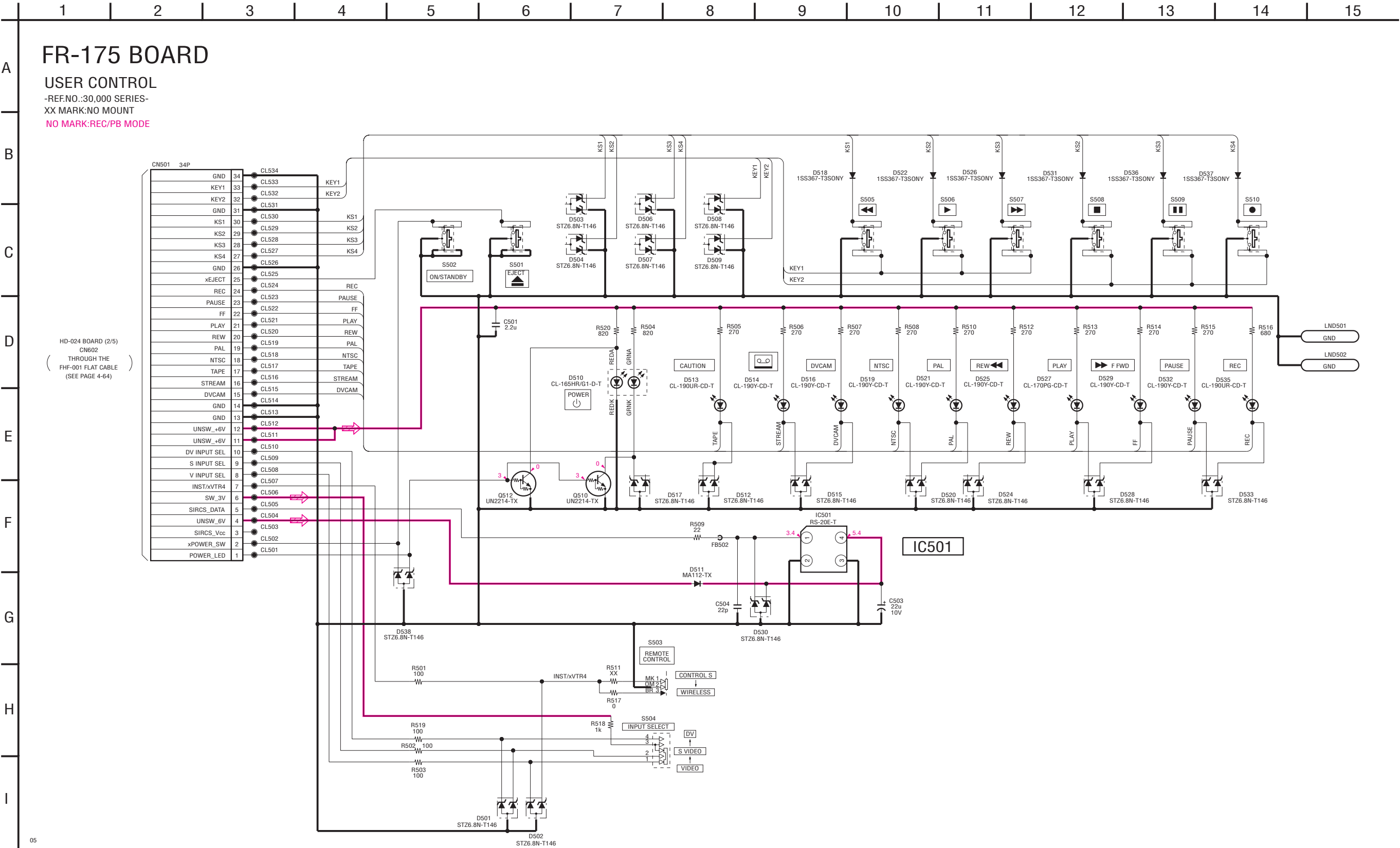
FR-175 BOARD (SIDE A)



FR-175 BOARD (SIDE B)



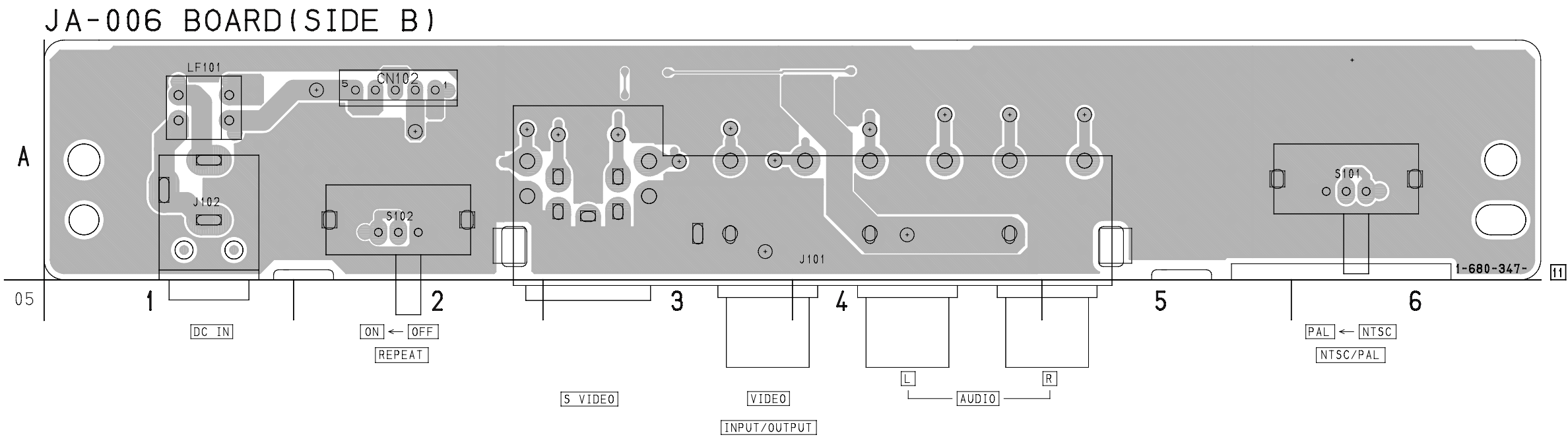
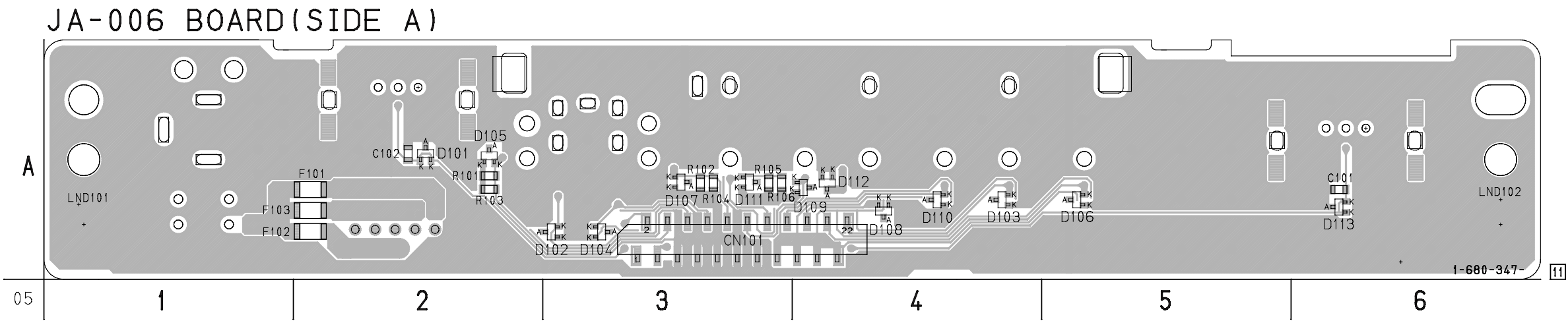
FR-175 (USER CONTROL) SCHEMATIC DIAGRAM



JA-006 (AV IN/OUT, DC IN) PRINTED WIRING BOARD

– Ref. No.: JA-006 board; 10,000 series –

- For Printed Wiring Board.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-100 for printed parts location.



JA-006 (AV IN/OUT, DC IN) SCHEMATIC DIAGRAM

	1	2	3	4	5	6	7	8	9	10	11	12	13
--	---	---	---	---	---	---	---	---	---	----	----	----	----

A

B

C

D

E

F

G

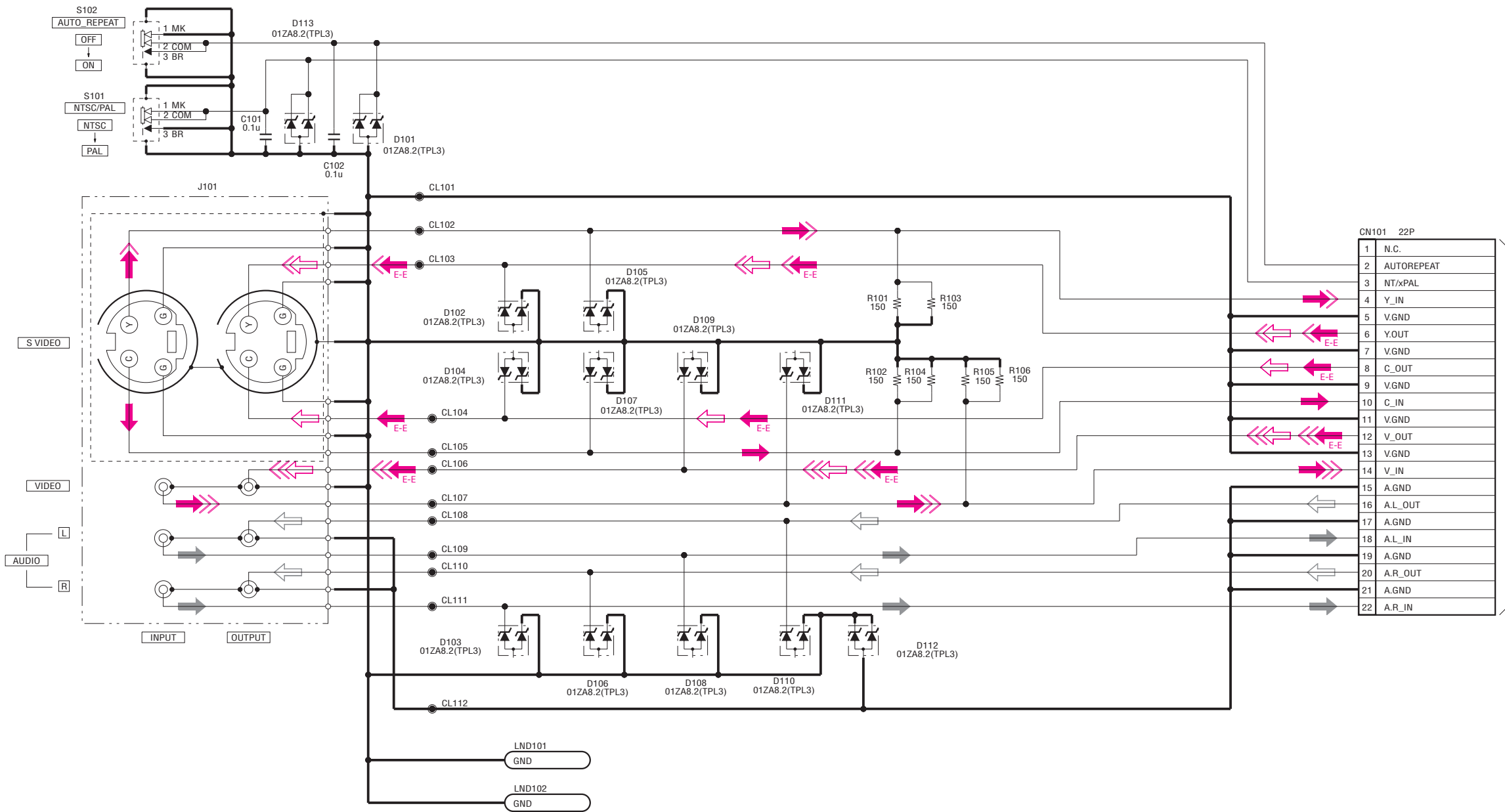
H

I

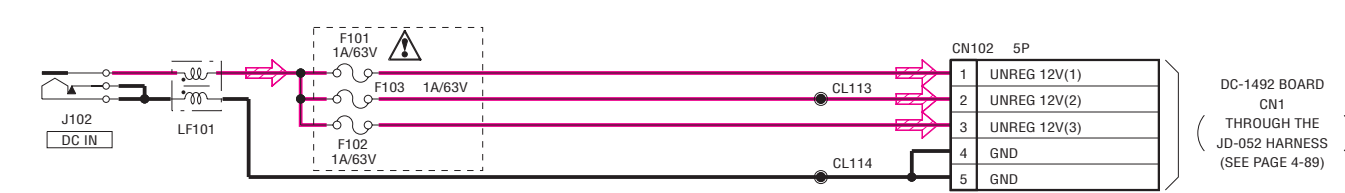
JA-006 BOARD

AV IN/OUT,DC IN

-REF.NO.:10,000 SERIES-
XX MARK:NO MOUNT



VD-031 BOARD (2/5)
CN003
THROUGH THE
FVJ-001 FLAT CABLE
(SEE PAGE 4-53)



SIGNAL PATH

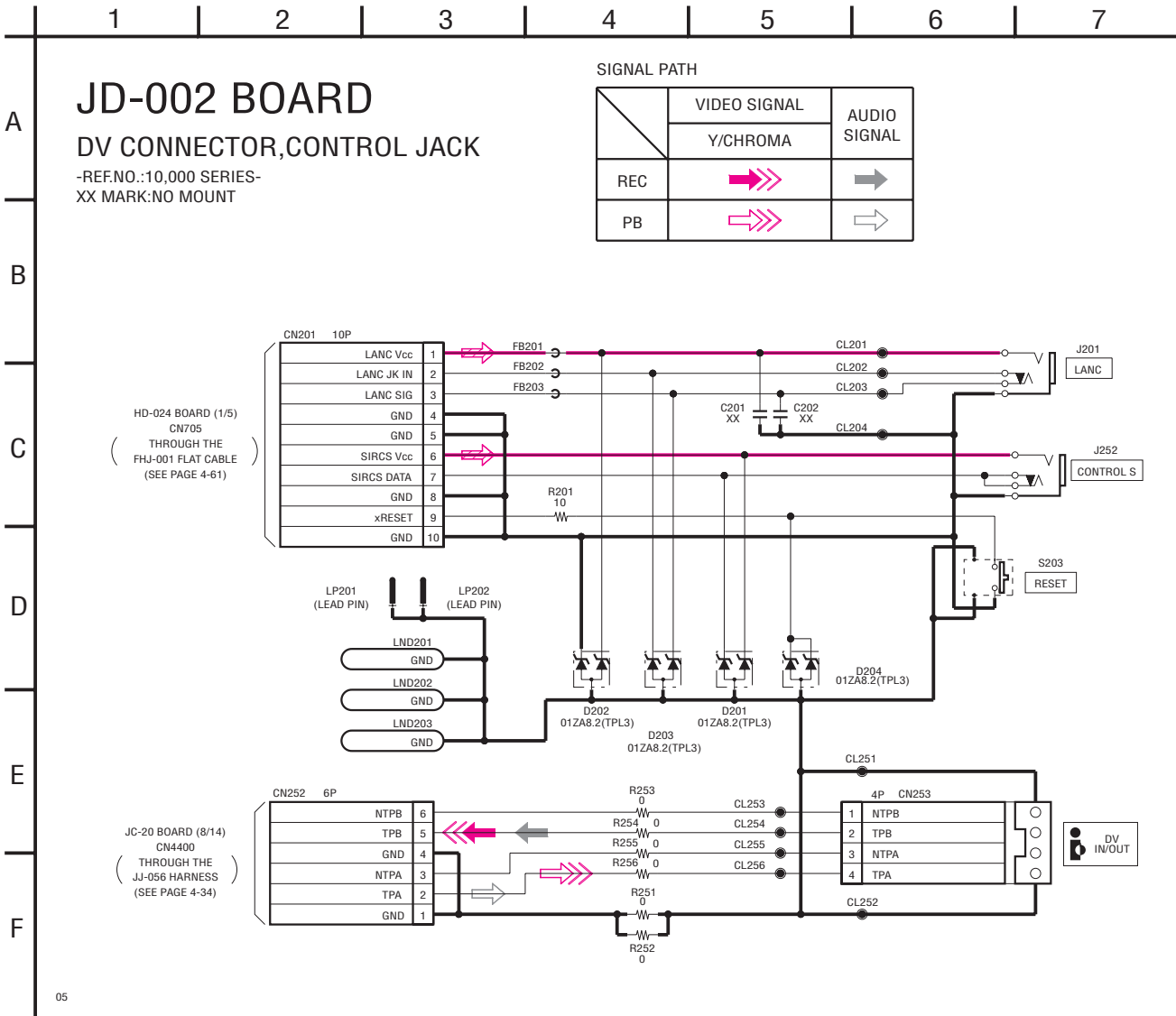
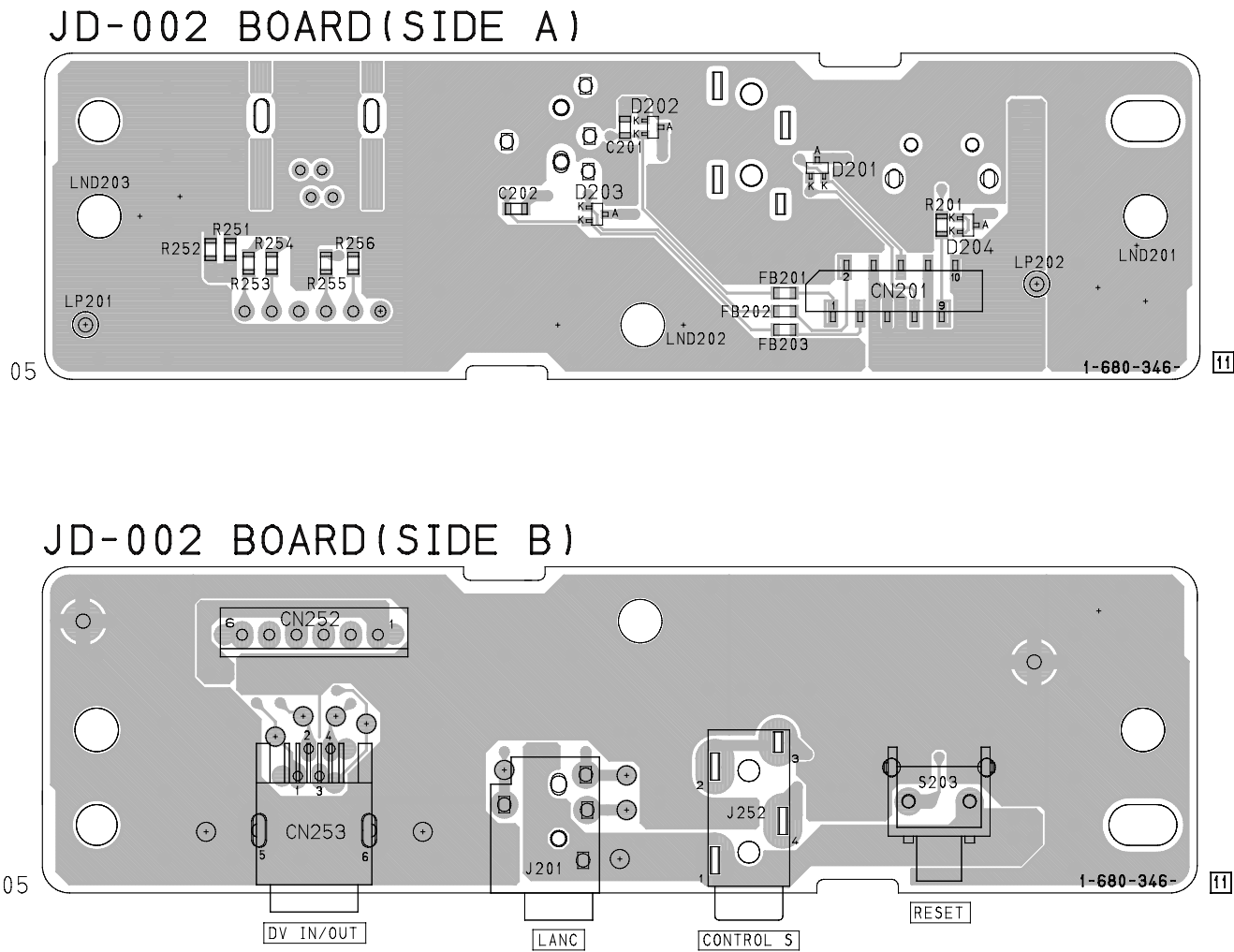
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	→	→	→	→
PB	→	→	→	→

The components identified by mark \triangle or dotted line with mark \triangle are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

JD-002 (DV CONNECTOR, CONTROL JACK) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM
– Ref. No.: JD-002 board; 10,000 series –

- For Printed Wiring Board.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.



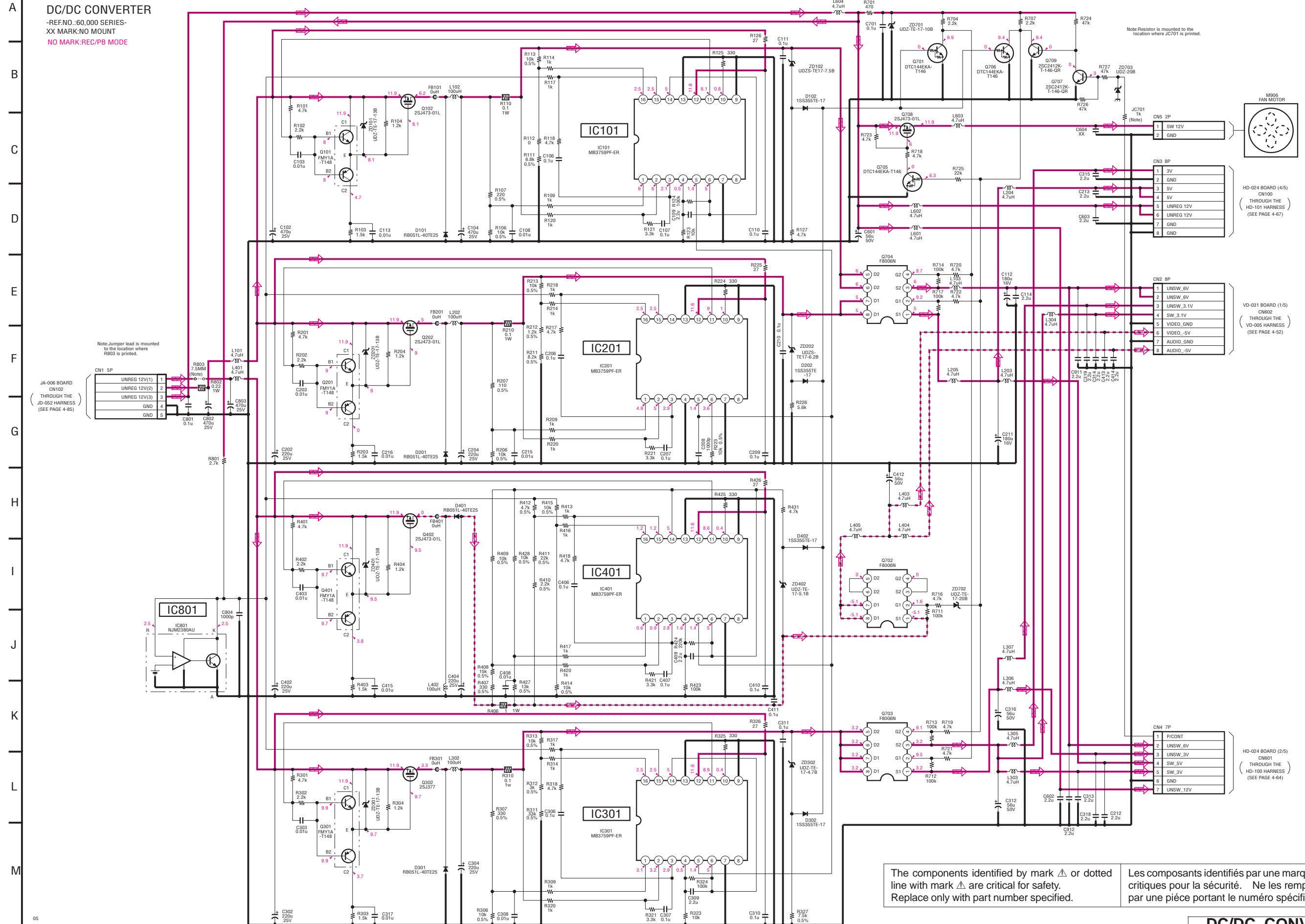
DC-1492 (DC/DC CONVERTER) SCHEMATIC DIAGRAM • See page 4-91 for DC-1492 printed wiring board.



⚠ DC-1492 BOARD


DC/DC CONVERTER

-REF.NO.:60,000 SERIES-
XX MARK:NO MOUNT

NO MARK:REC/PB MODE



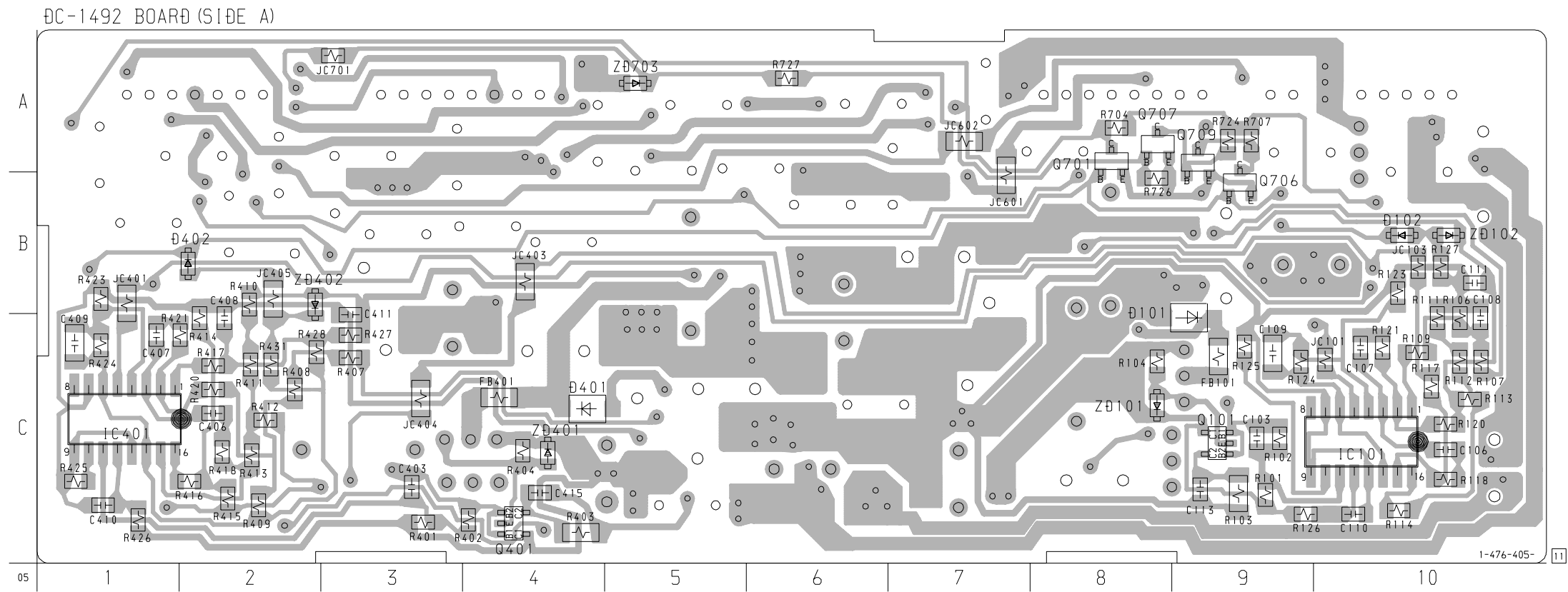
The components identified by mark  or dotted line with mark  are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

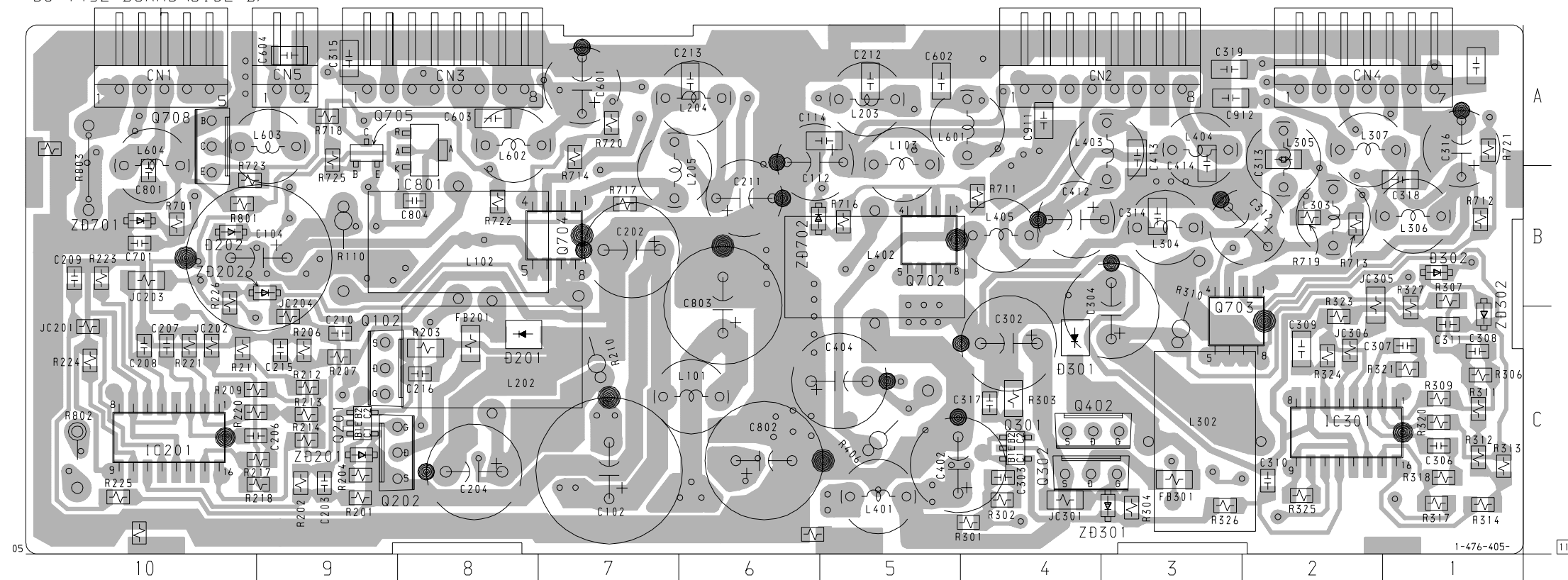
DC-1492 (DC/DC CONVERTER) PRINTED WIRING BOARD

– Ref. No.: DC-1492 board; 60,000 series –

- For Printed Wiring Board.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-101 for printed parts location.
- Chip transistor

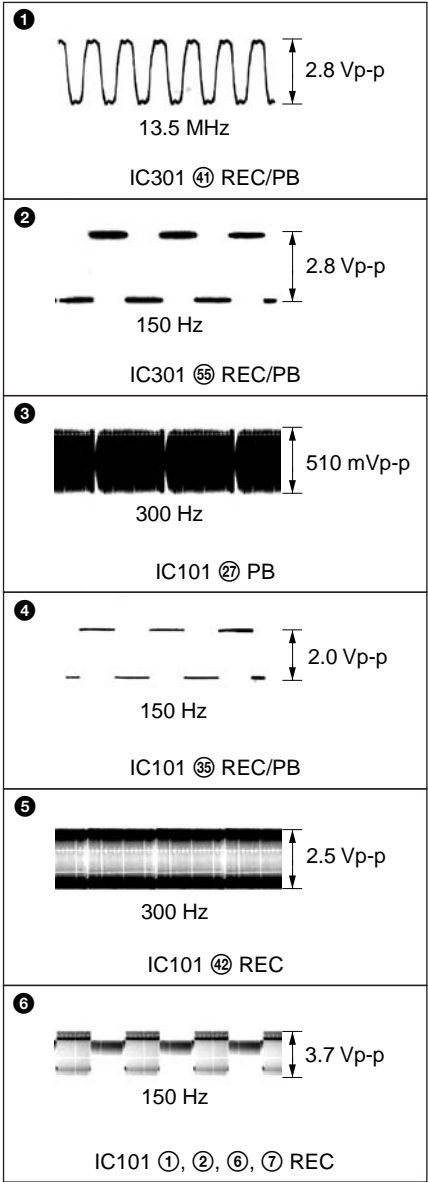


DC-1492 BOARD (SIDE B)

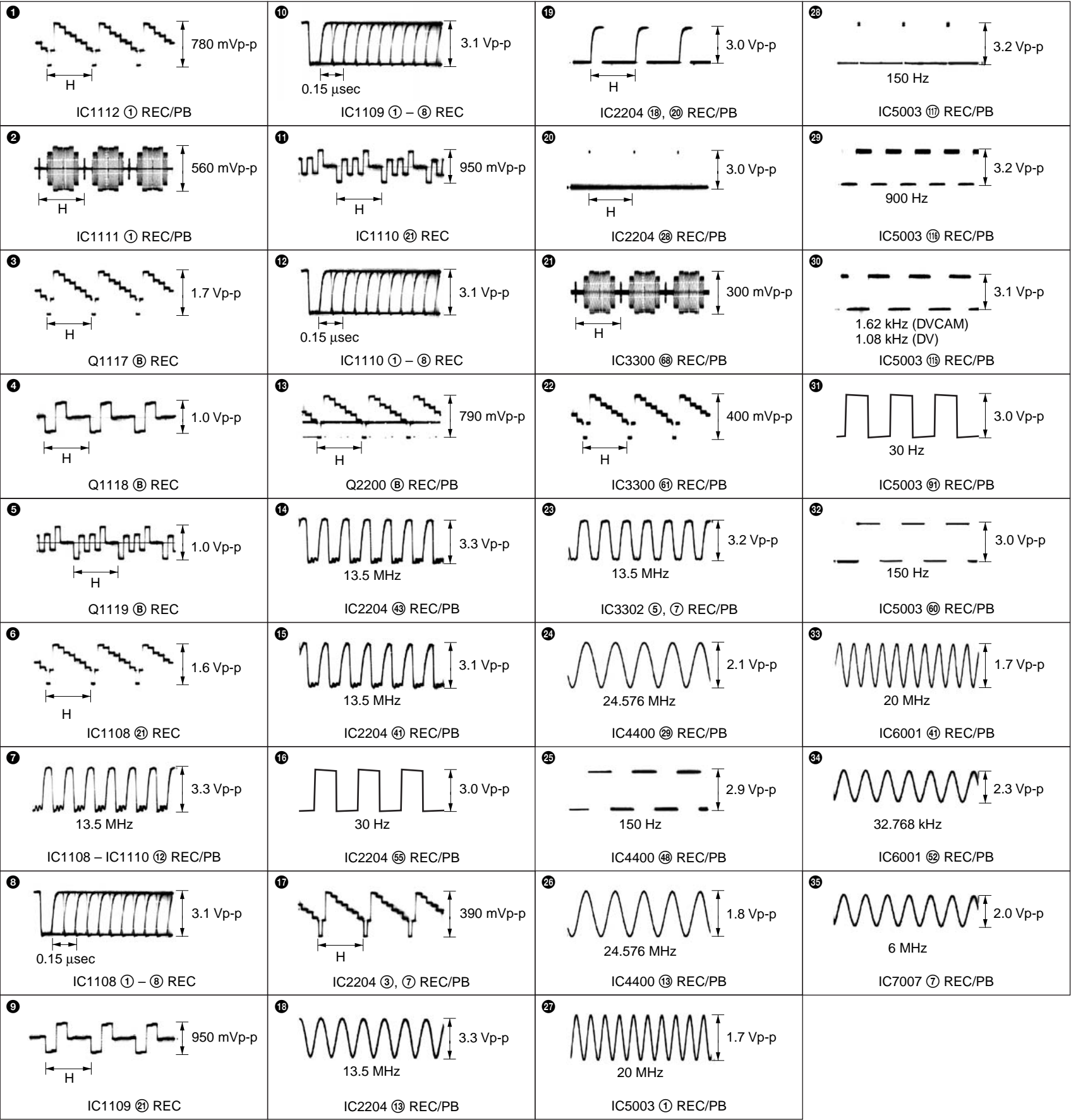


4-3. WAVEFORMS


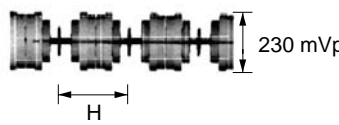
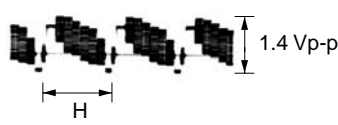

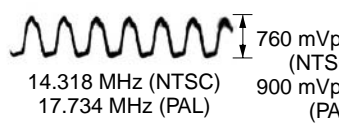
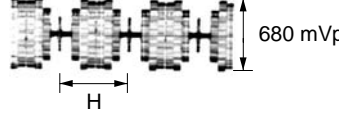

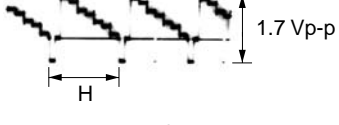

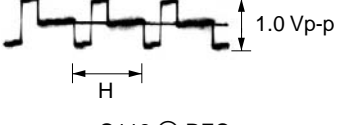

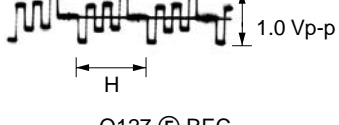

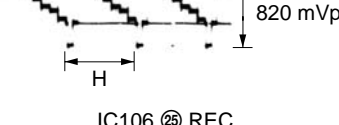

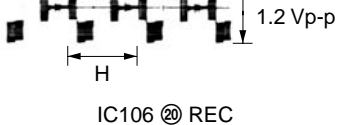

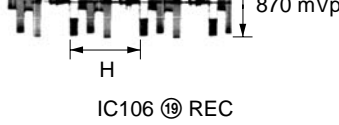

RP-234 BOARD



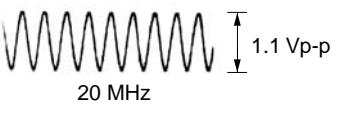
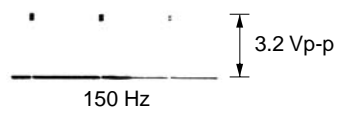
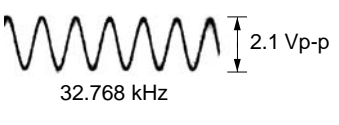
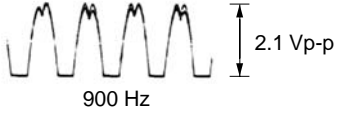
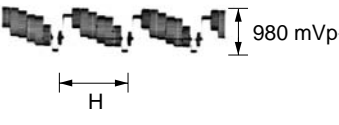



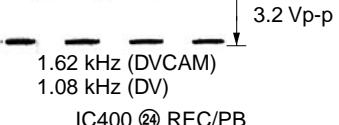
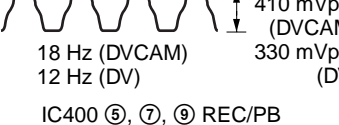
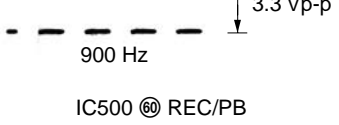
JC-20 BOARD



VD-031 BOARD

1  Q110 ⑤ REC	10  IC106 ⑤ REC	19  IC701 ②⑤ REC
2  Q102 ⑤ REC	11  IC106 ⑩ REC/PB	
3  Q103 ⑤ REC	12  TP100 REC/PB	
4  Q126 ⑤ REC	13  IC301 ⑬, ⑭ REC/PB	
5  Q118 ⑤ REC	14  IC304 ⑬, ⑭ REC/PB	
6  Q127 ⑤ REC	15  IC300 ⑬ REC/PB	
7  IC106 ②⑤ REC	16  IC701 ⑪ REC/PB	
8  IC106 ②⑥ REC	17  IC701 ③⑨ REC	
9  IC106 ⑩ REC	18  IC701 ③⑪ REC	

HD-024 BOARD

1  IC707 ④⑪ REC/PB	10  IC500 ④ REC/PB
2  IC707 ②② REC/PB	11  IC501 ②, ⑩, ②③ REC/PB
3  Q551 ⑧ REC	
4  IC551 ⑩ REC	
5  IC551 ⑪ REC	
6  IC551 ③⑪ REC/PB	
7  IC400 ②④ REC/PB	
8  IC400 ⑤, ⑦, ⑨ REC/PB	
9  IC500 ⑥⑥ REC/PB	

4-4. PARTS LOCATION

RP-234 BOARD (SIDE A)		RP-234 BOARD (SIDE B)		JC-20 BOARD (SIDE A)		JC-20 BOARD (SIDE B)		VD-031 BOARD (SIDE A)		HD-024 BOARD (SIDE A)		HD-024 BOARD (SIDE B)		MD-76 BOARD (SIDE A)		MD-76 BOARD (SIDE B)		FR-175 BOARD (SIDE A)		FR-175 BOARD (SIDE B)		JA-006 BOARD (SIDE A)		JA-006 BOARD (SIDE B)	
CN101	B-5	IC201	A-4	CN1101	B-11	CN1100	B-1	CN002	A-1	CN001	A-5	CN100	A-6	CN001	A-1	D001	D-11	CN501	B-2	D501	B-3	CN101	A-3	CN102	A-2
CN201	A-5	IC301	B-2	CN4401	D-6	CN4400	D-1	CN003	A-3	CN200	A-2			CN002	A-2					D502	B-3				
CN202	B-2			CN4402	D-5	CN6002	A-7	CN004	B-6	CN201	A-1	D101	B-5	CN003	G-6	IC004	F-12	D510	B-1	D503	B-4	D101	A-2		
CN203	B-4	Q201	B-3	CN5005	D-10	CN8001	D-8	CN501	A-6	CN300	A-4	D102	B-4			IC005	F-10	D513	B-1	D504	B-5	D102	A-3		
		Q202	B-4	CN6001	A-8			CN602	A-4	CN400	A-2	D103	B-5	IC001	D-5			D514	B-2	D506	B-6	D103	A-4		
IC101	B-5	Q203	B-5	CN7001	B-4	D2201	C-7	CN603	A-5	CN500	A-3	D104	B-5	IC002	D-5	Q001	C-8	D516	B-2	D507	B-7	D104	A-3		
IC102	B-4					D5001	C-4			CN501	A-4	D601	E-4	IC003	C-5	Q002	C-14	D519	B-3	D508	B-5	D105	A-2		
				D4400	B-6					CN601	C-1	D603	C-1					D521	B-3	D509	B-4	D106	A-5		
				IC1100	D-5	IC1102	C-11	D101	D-1	CN602	E-5	D604	C-1					D525	B-5	D511	B-2	D107	A-3		
				IC1101	D-10	IC1103	C-11	D102	C-3	CN703	C-6	D605	C-1					D527	B-5	D512	B-1	D108	A-4		
				IC1105	A-9	IC1104	C-12	D103	D-2	CN704	E-1	D606	C-1					D529	B-6	D515	B-2	D109	A-4		
				IC1106	B-10	IC1108	A-9	D501	B-6	CN705	D-6	D607	C-1					D532	B-6	D517	B-1	D110	A-4		
				IC1107	C-10	IC1109	B-9	D502	B-6	CN932	D-2	D608	C-1					D535	B-7	D518	B-4	D111	A-3		
				IC1111	A-11	IC1110	D-9	D503	B-6			D701	C-2							D520	B-3	D112	A-4		
				IC1112	B-12	IC2200	C-8			D551	D-3	D703	C-2							D522	B-5	D113	A-6		
				IC1113	B-2	IC2202	C-5	IC001	A-6	D702	D-5	D704	C-2							D524	B-5				
				IC2208	C-9	IC2203	D-5	IC002	A-1	D705	D-5									D526	B-6				
				IC2210	D-9	IC2204	B-7	IC100	C-2			IC200	B-1							D528	B-5				
				IC2211	D-9	IC2209	C-9	IC101	C-2	IC100	B-4	IC500	B-3							D530	B-2				
				IC2212	D-9	IC2214	C-9	IC102	B-3	IC202	B-2	IC603	D-4							D531	B-4				
				IC2213	D-9	IC2215	B-9	IC103	B-3	IC300	A-4	IC604	C-1							D533	B-7				
				IC3300	B-8	IC5001	C-4	IC106	D-2	IC400	A-2	IC701	C-1							D536	B-6				
				IC3301	D-9	IC5002	D-5	IC107	B-3	IC501	A-3	IC702	C-1							D537	B-7				
				IC3302	D-8	IC5007	D-4	IC110	C-1	IC551	D-2	IC703	C-2							D538	B-1				
				IC3303	B-6	IC5008	D-6	IC300	B-4	IC552	E-3	IC704	C-2												
				IC4400	B-5	IC6001	B-6	IC301	B-4	IC553	D-3									IC501	B-2				
				IC4401	D-4	IC6003	A-4	IC304	B-4	IC601	D-4	Q100	B-5												
				IC4402	D-2	IC6004	A-6	IC501	B-6	IC602	E-6	Q101	B-4												
				IC5003	D-6	IC7001	B-3	IC502	B-5	IC605	E-4	Q102	B-5							Q510	B-1				
				IC5006	D-8	IC7002	A-3	IC700	D-4	IC606	D-4	Q103	B-5							Q512	B-1				
				IC7008	B-2	IC7003	B-2	IC701	C-4	IC607	D-5	Q104	B-4												
						IC7004	A-2			IC608	D-5	Q105	B-4												
						IC7005	C-1	Q001	A-1	IC609	E-5	Q200	B-2												
				Q1101	B-11	IC7006	B-2	Q004	A-2	IC610	C-6	Q301	A-3												
				Q1104	B-11	IC7007	D-3	Q005	A-2	IC705	C-5	Q302	A-3												
				Q1109	C-11	IC7009	B-3	Q100	D-4	IC706	D-5	Q601	E-5												
				Q1116	D-10			Q101	B-3	IC707	C-4	Q602	E-5												
				Q1129	A-11			Q102	C-3			Q604	E-5												
				Q1130	A-11	Q1117	A-11	Q103	B-3	Q201	A-2	Q605	E-5												
				Q1131	B-3	Q1118	B-12	Q104	B-2	Q551	D-1	Q606	D-4												
				Q1132	B-3	Q1119	C-12	Q105	B-3	Q552	D-1	Q608	E-5												
				Q2200	C-8	Q1120	A-11	Q106	C-3	Q553	D-1	Q609	E-5												
				Q2201	C-7	Q1121	B-11	Q107	C-2	Q554	E-1	Q702	C-2												
				Q6011	C-5	Q1122	B-11	Q108	B-2	Q555	E-1	Q703	C-2												
				Q6012	C-5	Q1123	A-10	Q109	B-3	Q556	E-2														
						Q1124	B-11	Q110	C-2	Q557	D-2														
						Q1125	C-11	Q111	C-1	Q603	E-5														
						Q1126	A-10	Q112	C-3	Q607	E-5														
						Q1127	B-10	Q113	C-2	Q611	E-5														
						Q1128	C-11	Q114	C-2	Q612	C-6														
						Q2202	A-9	Q115	B-1	Q613	C-6														
						Q2203	D-6	Q116	B-1	Q614	C-6														
						Q5001	C-4	Q117	C-1	Q701	D-4														
						Q5002	C-4	Q118	B-1																
						Q6003	A-4	Q119	C-1																
						Q6004	A-4	Q120	C-2																
						Q6005	A-4	Q121	B-1																
						Q7001	A-2	Q122	B-2																
								Q123	D-3																
								Q124	B-1																
								Q125	B-2																
								Q126	B-1																
								Q127	B-2																
								Q128	A-3																
								Q129	C-3																
								Q130	D-2																
								Q302	B-4																
								Q308	A-4																
								Q500	B-6																
								Q501	B-5																
								Q502	B-6																
								Q504	B-6																
								Q700	D-4																
								Q701	D-4																
								Q706	D-5																
								Q707	D-5																
								Q708	D-5																
								Q710	D-5																
								Q712	D-5																
								Q713	D-5																
								Q714	D-4																

DC-1492 BOARD
(SIDE A)

D101	C-9
D102	B-10
D401	C-4
D402	B-2
IC101	C-10
IC401	C-1
Q101	C-9
Q401	C-4
Q701	A-8
Q706	B-9
Q707	A-8
Q709	A-9
ZD101	C-8
ZD102	B-10
ZD401	C-4
ZD402	B-2
ZD703	A-5

DC-1492 BOARD
(SIDE B)

CN1	A-10
CN2	A-4
CN3	A-8
CN4	A-2
CN5	A-9
D201	C-8
D202	B-10
D301	C-4
D302	B-1
IC201	C-10
IC301	C-2
IC801	A-8
Q102	C-9
Q201	C-9
Q202	C-9
Q301	C-4
Q302	C-4
Q402	C-4
Q702	B-5
Q703	C-3
Q704	B-7
Q705	A-9
Q708	A-10
ZD201	C-9
ZD202	B-9
ZD301	C-3
ZD302	C-1
ZD701	B-10
ZD702	B-6

SECTION 5 ADJUSTMENTS

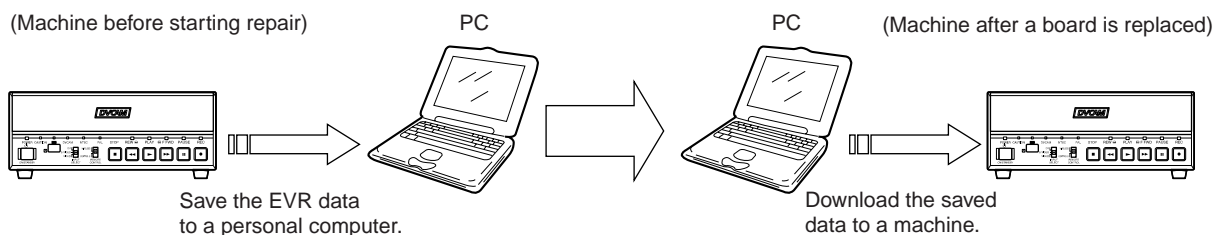
1. Before starting adjustment

EVR Data Re-writing Procedure When Replacing Board

The data that is stored in the repair board, is not necessarily correct.
Perform either procedure 1 or procedure 2 or procedure 3 when replacing board.

Procedure 1

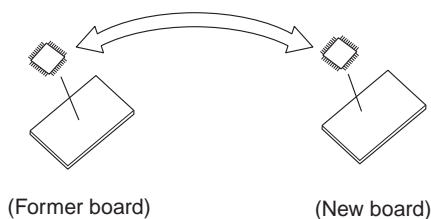
Save the EVR data of the machine in which a board is going to be replaced. Download the saved data after a board is replaced.



Procedure 2

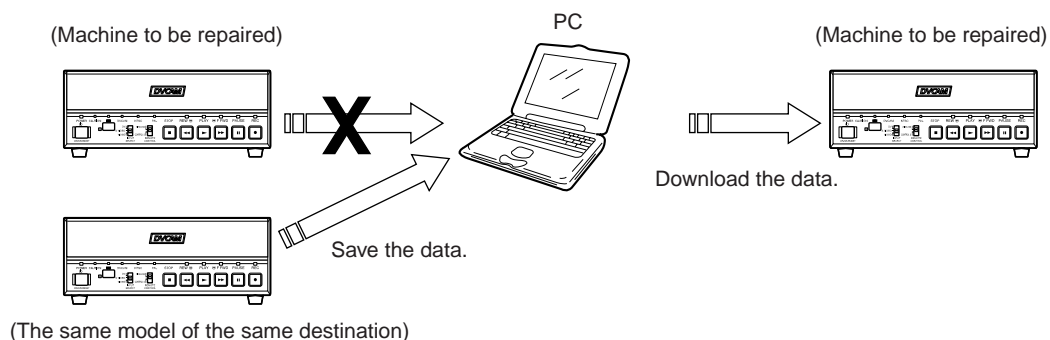
Remove the EEPROM from the board of the machine that is going to be repaired. Install the removed EEPROM to the replaced board.

Remove the EEPROM and install it.



Procedure 3

When the data cannot be saved due to defective EEPROM, or when the EEPROM cannot be removed or installed, save the data from the same model of the same destination, and download it.



After the EVR data is saved and downloaded, check the respective items of the EVR data.
(Refer to page 5-3 for the items to be checked)

1-1. Adjusting items when replacing main parts and boards

• Adjusting items when replacing main parts

When replacing main parts, adjust the items indicated by ● in the following table.

Adjustment Section	Adjustment	Replaced part									
		Block replacement			Mounted part replacement						
		Mechanism deck	Mechanism deck M901 (Drum assembly)	Mechanism deck M903 (Capstan motor)	PR-234 board IC101 (TRW)	RP-234 board IC201 (TRF)	JC-20 board IC1108-1110 (A/D CONV.)	JC-20 board IC2204 (CLOCK GEN.)	JC-20 board IC3300 (VFD)	VD-031 board IC106 (C DECODE)	VD-031 board IC701 (Y/C SEP.)
System control	Initialization of C, D, E page data										
	Node unique ID No. input										
Servo, RF	CAPSTAN FG adj.	●		●							
	Switching position adj.	●	●								
	RF-AGC adj.	●	●		●	●					
	CLK DELAY and AEQ adj.	●	●		●	●					
	PLL f ₀ adj.	●	●		●	●					
Video	VFD SPCK adj.								●		
	A/D converter reference voltage adj.						●				
	Y/CR/CB clamp reference voltageadj.						●				
	AFC picture frame adj.							●			
	AFC adj.							●			
	Playback Y/C level adj.								●		
	Decoder free run adj.									●	
	Y/C separation adj.										●
	REC signal level adj.									●	
	HUE adj.									●	
Mechanism	Tape path adj.	●	●	●							

Table 5-1-1 (1)

• **Adjusting items when replacing a board or EEPROM**

When replacing a board or EEPROM, adjust the items indicated by ● in the following table.

Adjustment Section	Adjustment	Replaced part					
		Board replcement					
		(COMPLETE)	(COMPLETE)	(COMPLETE)	(COMPLETE)		
		HD-024 board	RP-234 board	IC-20 board	VD-031 board	IC-20 board IC5006 (EEP ROM)	HD-024 board IC705 (EEP ROM)
System control	Initialization of C, D, E page data	●		●		●	●
	Node unique ID No. input			●		●	
Servo, RF	CAPSTAN FG adj.	●		●		●	
	Switching position adj.	●		●		●	
	RF-AGC adj.		●	●		●	
	CLK DELAY and AEQ adj.		●	●		●	
	PLL f0 adj.		●	●		●	
Video	VFD SPCK adj.			●			
	A/D converter reference voltage adj.			●			
	Y/CR/CB clamp reference voltageadj.			●			
	AFC picture frame adj.			●			
	AFC adj.			●			
	Playback Y/C level adj.			●		●	
	Decoder free run adj.				●		
	Y/C separation adj.				●		
	REC signal level adj.				●		
	HUE adj.				●		
Mechanism	Tape path adj.						

Table 5-1-1 (2)

Find the replacement parts in Section 6, "Repair parts list (exploded views)" and attach or remove the parts in the following order. When replacing and re-attaching the parts, adjustments are sometimes required. Follow the instructions of each item.

Note: Drawing numbers in each box of the chart refer to the numbers assigned to each part in the exploded views of Section 6, “Repair parts list”.



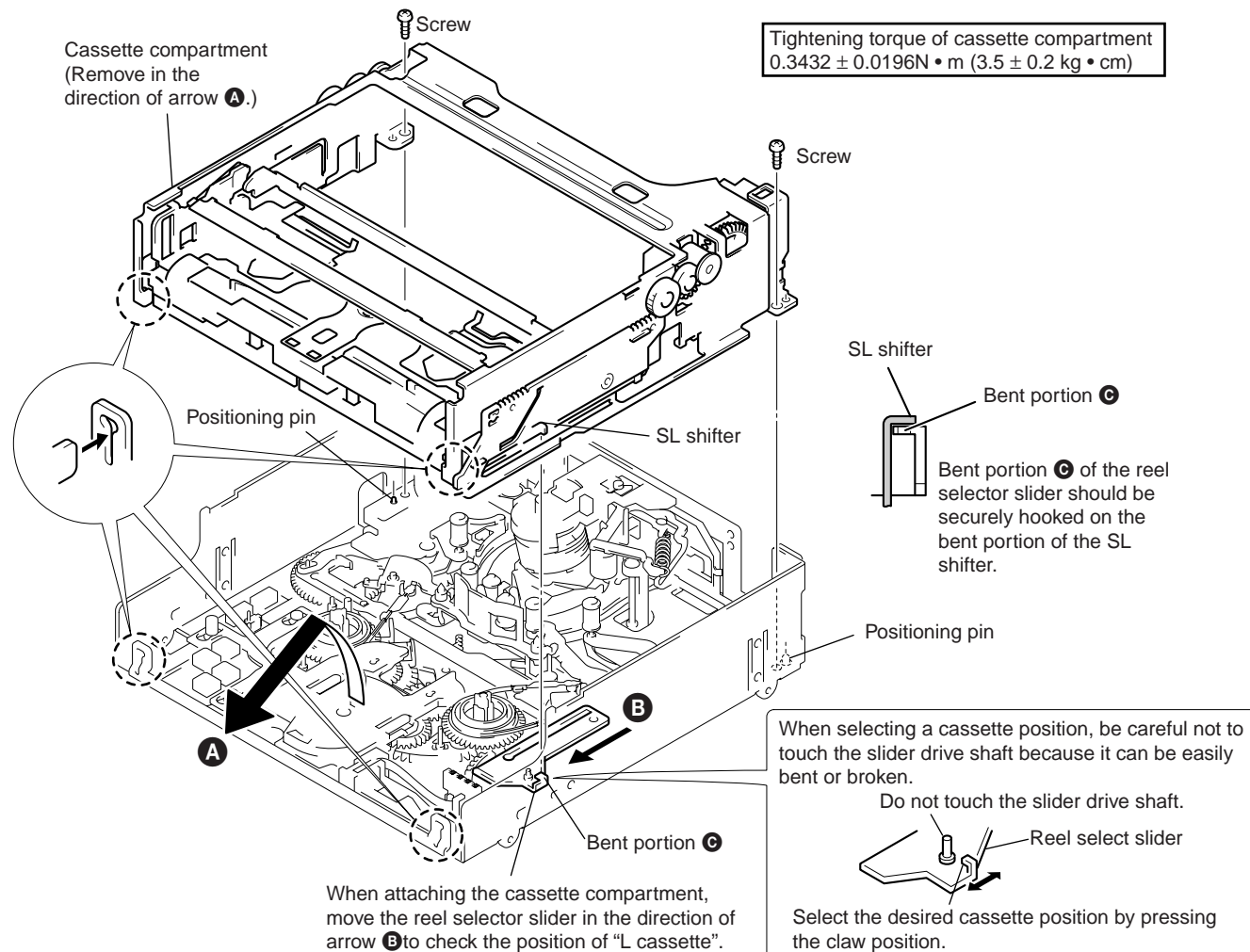
5-1. MECHANICAL SECTION ADJUSTMENTS

5-1-1. PARTS REPLACEMENT AND PREPARATION FOR ADJUSTMENT

1-1. ASSEMBLY/DISASSEMBLY OF CASSETTE COMPARTMENT

For details on disassembling the mechanism deck (R mechanism), refer to the Service Manual of the main unit in which the R mechanism is mounted.

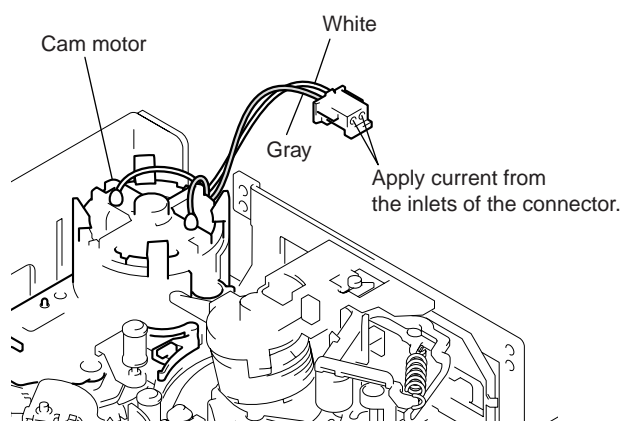
Before attaching or removing the cassette compartment, check the position of "L cassette".



1-2. HOW TO LOAD/UNLOAD

[Using the regulated power supply]

Note: Make sure to remove the connector of the cam motor from the board of the main unit and apply +5V current.

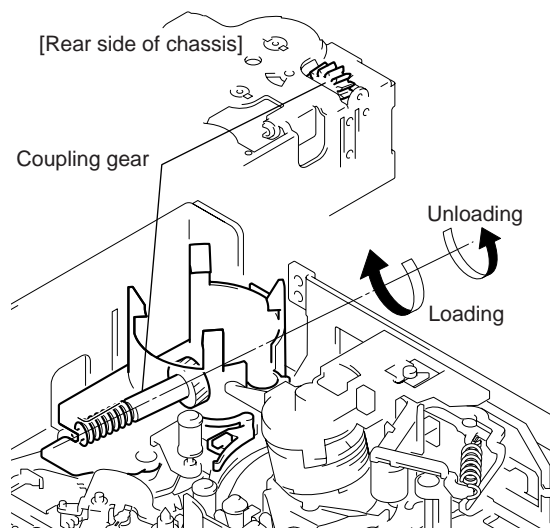


Loading : Apply positive polarity (+) of power supply to the gray wire and negative polarity (-) of power supply to the white wire.
Unloading : Apply negative polarity (-) of power supply to the gray wire and positive polarity (+) of power supply to the white wire.



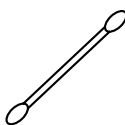
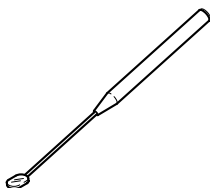
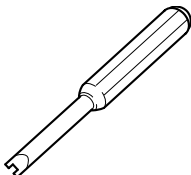
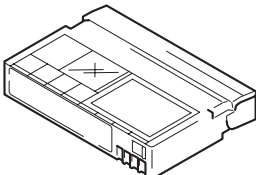
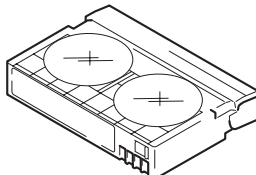

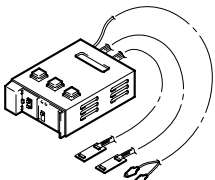
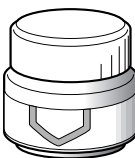
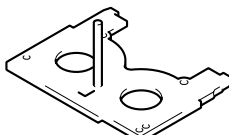

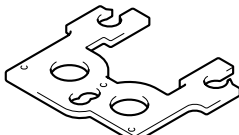
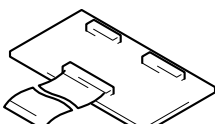
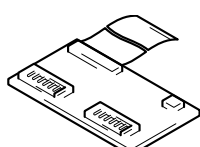
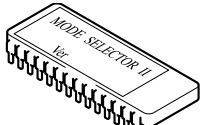
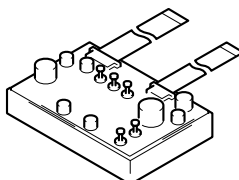
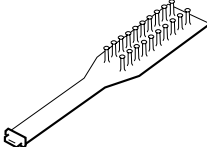
[Manual: No cam motor]

Note: Remove the cam motor from the motor holder while referring to "Information" on page 5-4.

Rotate the coupling gear by hand to load or unload.



1-3. LIST OF SERVICE TOOLS

<p>J-1. Cleaning fluid (9-919-573-01)</p> 	<p>J-2. Wiping cloth (7-741-900-53)</p> 	<p>J-3. Super fine applicator (Made by NIPPON APPLICATOR (P752D)) (J-2501-023-A)</p> 	<p>J-4. Mirror (Small oval type) (J-6080-840-A)</p> 
<p>J-5. Screwdriver for tape path (J-6082-026-A)</p> 	<p>J-6. Tracking tape (XH2-1A1) (8-967-999-03)</p> 	<p>J-7. Mini DV torque cassette (J-6082-360-A)</p> 	<p>J-8. Adjusting remote commander (RM-95) (remodeled partly) Note 1 (J-6082-053-B)</p> 
<p>J-9. Mode selector II (J-6082-282-B)</p> 	<p>J-10. Foil Grease (SG-941) (7-622-001-39)</p> 	<p>J-11. Cassette reference plate (J-6082-330-A)</p> 	<p>J-12. Reel reference plate (J-6082-331-A)</p> 
<p>J-13. TG 2/7 preset plate (J-6082-459-A)</p> 	<p>J-14. Relay board for tension regulator adjustment (J-6082-461-A)</p> 	<p>J-15. Mode selector conversion board (J-6082-460-A)</p> 	<p>J-16. ROM for Mode Selector (Cope with R mechanism: Note 2) (J-6082-314-E)</p> 
<p>J-17. Board for tension regulator adjustment (J-6082-359-A)</p> 	<p>J-18. CPC-8 jig (J-6082-388-A)</p> 		

Note 1: If the micro processor IC in the adjustment remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).

Note 2: The ROM makes mode selector II's version up to use it with R mechanism.

1-4. About Mode Selector II

- About Mode Selector II

4-1. OUTLINE

This unit is a mechanism drive tool which supplements the maintenance of each mechanism deck. Its functions are described below.

1. Manual test

A mode which drives the motor only while the switch is ON. It enables the operator to control the motor as desired.

2. Step test

A mode which drives the motor until the current condition detected by the sensor changes to another condition. It enables the movements made by the motor in each operation to be controlled while being detected.

3. Auto test

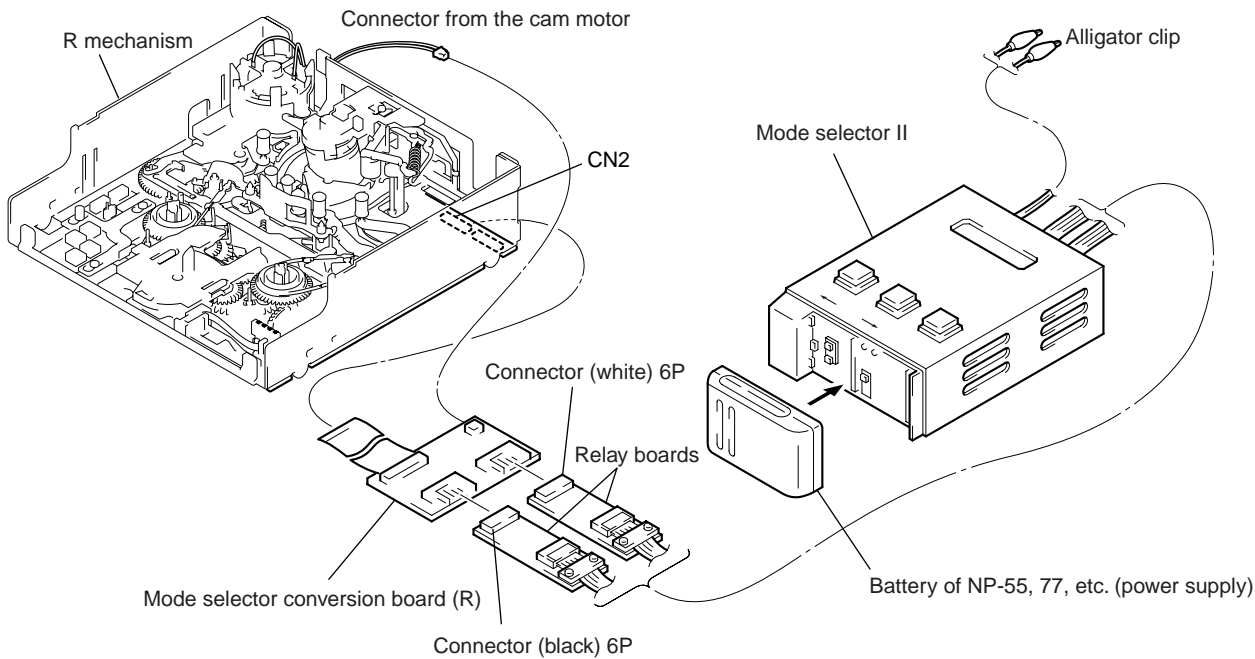
A mode that checks if the mechanism operates normally according to the condition shift table recorded in the unit for each mechanism deck. All the conditions of the decks are checked through a series of operations.
An error message is displayed and operations are stopped if incorrect shifts and conditions are detected.

4-2. MECHANISM CONDITION (POSITION) SHIFTING ORDER LIST

After selecting the mechanism deck, select one of the two test modes other than the auto test, and press the RVS or FF button to specify the mechanism state (position).

MD name					R mechanism
Code	A	B	C	D	
0	1	1	1	1	ULE
0	0	1	1	2	DEW
1	0	1	1	3	LE
1	0	0	1	4	REW
1	0	1	0	5	FF
1	1	1	0	6	STOP
1	1	0	1	7	FWD / RVS

4-3. MODE SELECTOR II CONNECTION



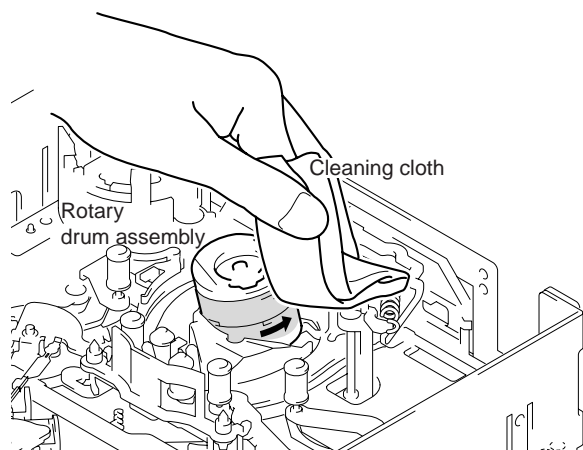
5-1-2. PERIODIC CHECK

- Carry out the following maintenance and periodic checks not only to fully display the functions and performance of the set, but also for the equipment and tape. After replacing, service the set as follows, regardless of the length of use.

2-1. CLEANING OF ROTARY DRUM ASSEMBLY

- Press a wiping cloth (J-2) moistened with cleaning fluid (J-1) against the rotary drum assembly gently, and clean it while rotating the rotary drum assembly slowly with your finger in the counterclockwise direction.

Note: Do not rotate the motor on power or rotate the rotary drum assembly in the clockwise direction with your finger. The head tip will also be damaged if the wiping cloth is moved perpendicularly against it. Therefore, be sure to follow the above instructions when cleaning the rotary drum assembly.

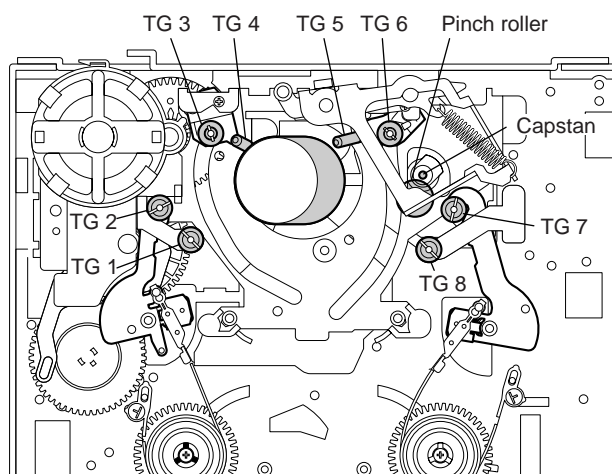


2-2. CLEANING OF TAPE PATH SYSTEM

- Clean the tape path systems (TG1 to TG8 and capstan) and the lower drum using a super fine applicator (J-3) moistened with cleaning fluid.

Note: Make sure that no oil or grease of the link mechanisms sticks to the super file applicator (J-3).

Note: Do not use a applicator moistened with alcohol to the other guide cleaning. But clean the pinch roller using alcohol.



2-3. PERIODIC CHECKS

Location of Maintenance and Check		Hours of Use (H)										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
Driving System	Cleaning of tape path surface	○	○	○	○	○	○	○	○	○	○	Be careful of the oil.
	Cleaning and degaussing of rotary drum assembly	○	○	○	○	○	○	○	○	○	○	Be careful of the oil.
	Capstan (Bearing)	—	◎	—	◎	—	◎	—	◎	—	◎	Make sure that no oil gets on the tape path surface.
	Gear	—	◎	—	◎	—	◎	—	◎	—	◎	
Performance Confirmation	Cam motor (worm block)	—	◎	—	◎	—	◎	—	◎	—	◎	X-3946-702-1 (M902)
	Abnormal noise	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Back tension measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake system	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD/RVS torque measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

Note: When overhauling, refer to the checks above and replace parts.

Note: Greasing

Always use the specified grease. If the viscosity differs, various problems may occur.
(Use SG-941 for all parts of the R mechanism.)

Check the quantity of grease when installing the parts which is needed to apply the grease. When replacing these parts, make sure to apply the specified amount of grease.

- FOIL (SG-941): Part No. 7-662-601-39

○ : Cleaning ◎: Applying grease ☆: Confirmation

5-1-3. PARTS REPLACEMENT

• Precaution

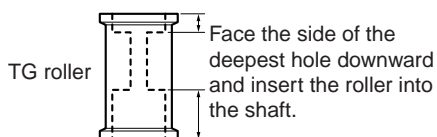
For details on disassembling the cabinets, boards and other parts, refer to “Section 2, Disassembly”. For details on replacing parts (disassembly, assembly) of the mechanism deck, refer to “Information” on page 5-4.

3-1. TAPE GUIDE 1/8 AND GUIDE GUARD

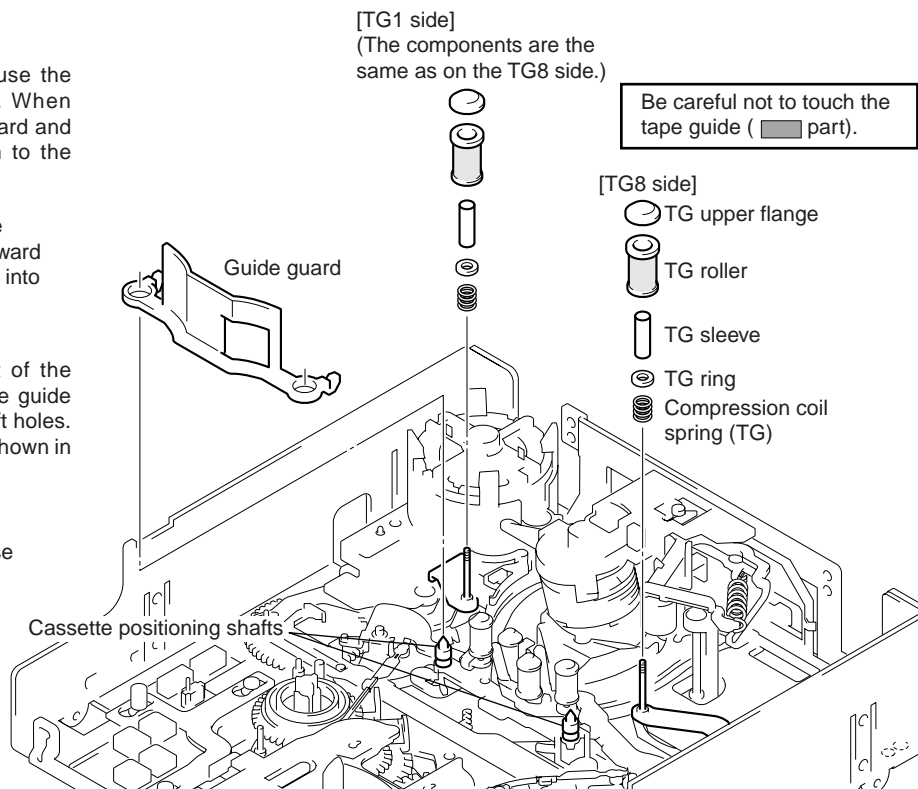
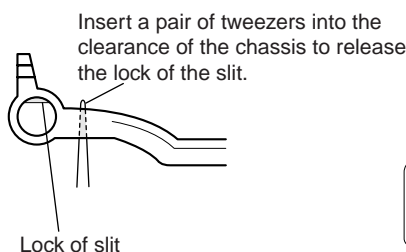
Disassembly/Assembly

When the tape guide 1/8 is replaced or attached, perform each adjustment from Adjustment Start -2 of the flowchart on page 5-23.

To attach or remove the tape guide, use the screwdriver for the tape path (J-5). When attaching the TG rollers, check the upward and downward directions and attach them to the chassis shaft.



The guide guard is fixed at each slit of the cassette positioning shaft. To attach the guide guard, only insert it into the right and left holes. To remove it, use a pair of tweezers as shown in the figure below.

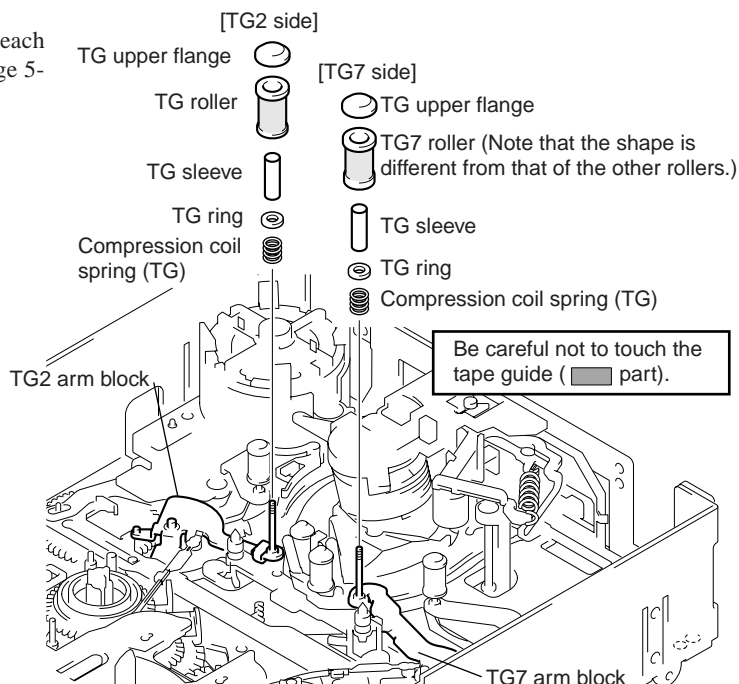
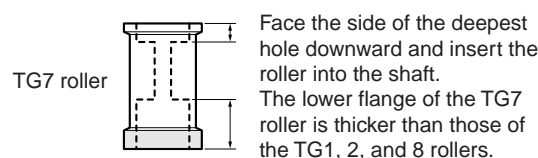


3-2. TAPE GUIDE 2/7

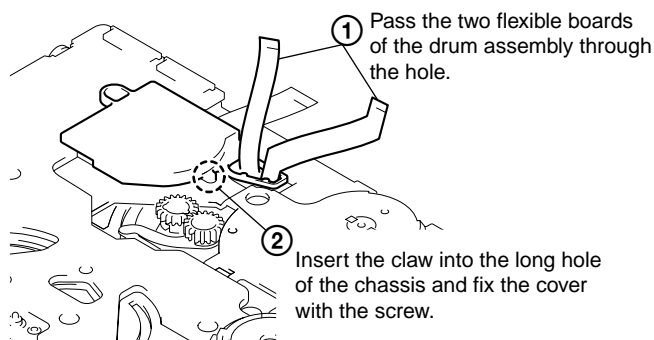
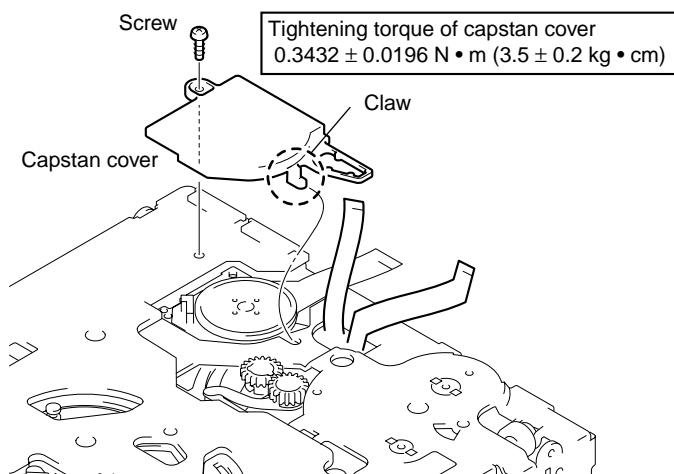
Disassembly/Assembly

When the tape guide 2/7 is replaced or attached, perform each adjustment from Adjustment Start -3 of the flowchart on page 5-23.

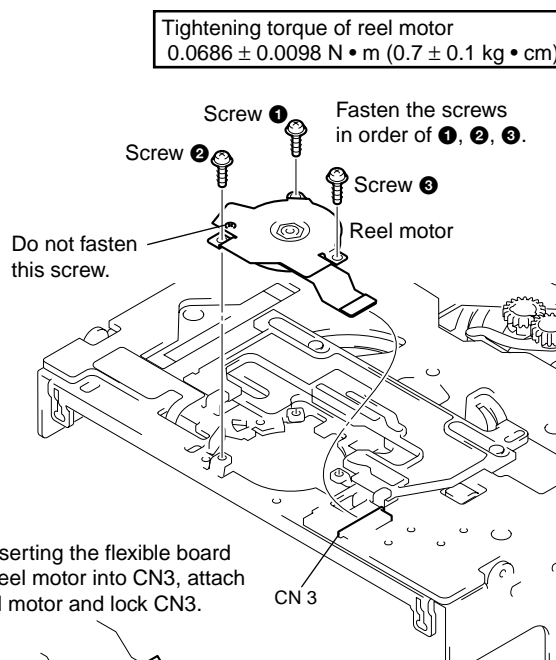
To attach or remove the tape guide, use the screwdriver for the tape path (J-5). When attaching the TG rollers, check the upward and downward directions and that the TG roller to be attached to the TG7 side is exclusively for the TG7 side. Then attach the TG rollers to the chassis shaft.



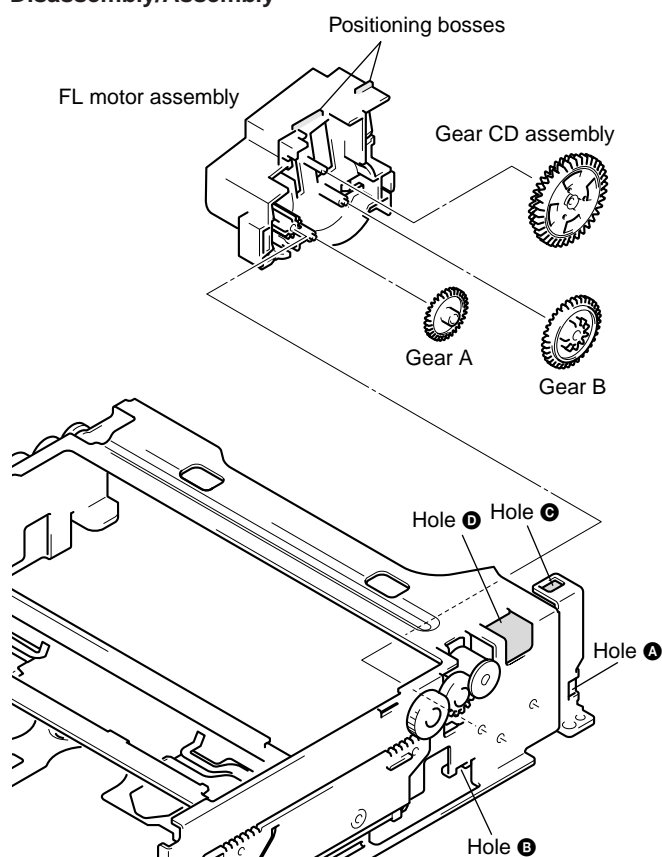
3-3. CAPSTAN COVER Disassembly/Assembly



3-4. REEL MOTOR Disassembly/Assembly



3-5. FL MOTOR ASSEMBLY, GEAR A, GEAR B AND GEAR CD ASSEMBLY Disassembly/Assembly

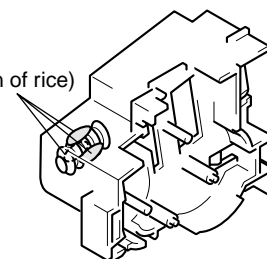


Remove the claws of the FL motor assembly from hole ① and hole ② and remove the FL motor assembly. Then, remove each gear, etc.

To attach them, after attaching the gears, etc. to the FL motor assembly and hook the positioning bosses of the FL motor block on holes ③ and ④ then fit the two claws in each hole ① and ②.

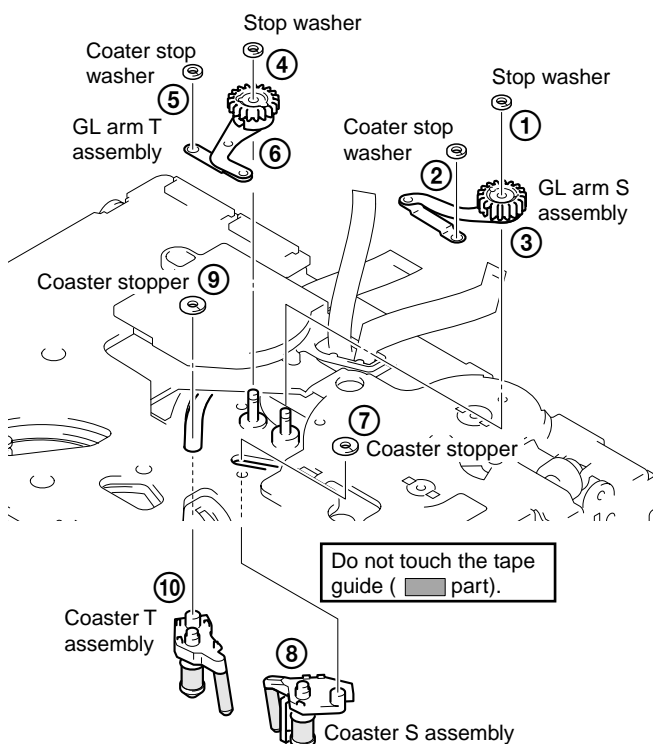
The worm gears are attached inside the FL motor assembly. When attaching the FL motor assembly, apply grease there.

Apply grease.
(half size of one grain of rice)

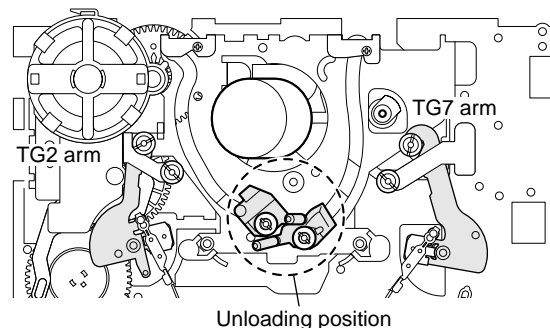


3-6. GL ARM S ASSEMBLY, GL ARM T ASSEMBLY, COASTER S ASSEMBLY AND COASTER T ASSEMBLY Disassembly: Remove the parts in order of ①→②→③→④→⑤→⑥→⑦→⑧→⑨→⑩

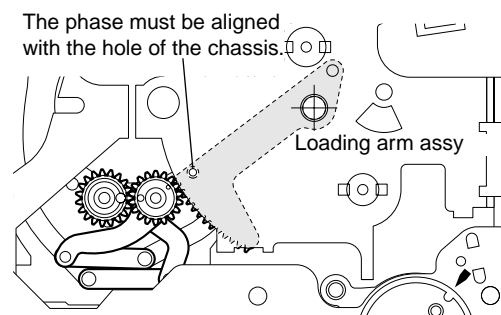
For the disassembling and assembling procedures of the GL gear, GL helical torsion spring, etc., refer to page 5-21.



Move the TG2/7 arms to the loading position with the regulated power supply or by hand while referring to page 5-5. Each coaster assembly must be in the unloading position.

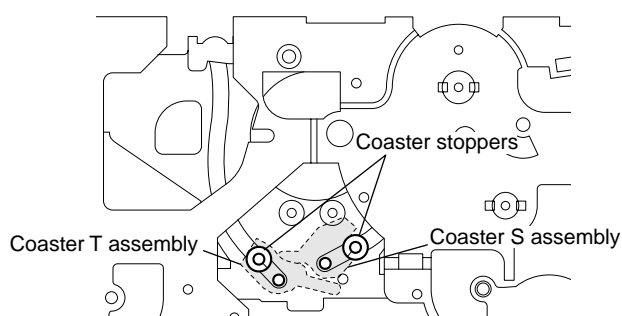


With consideration for future assembly, check from the rear of the chassis that the phase of the loading arm assy is aligned.

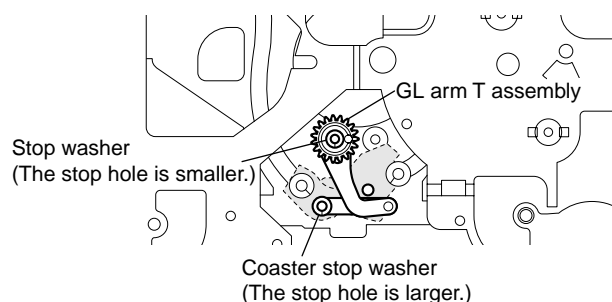


Assembly

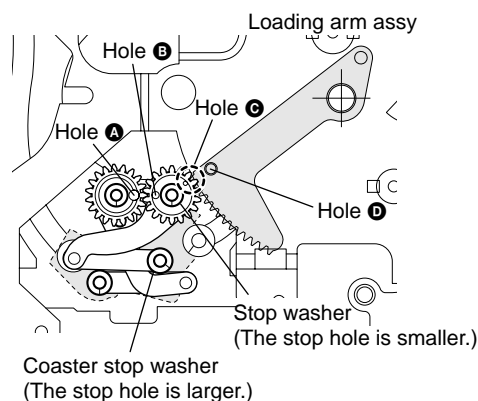
- ① Attach the coaster S/T assembly to the chassis with a new coaster stopper while being careful not to touch the tape guide. Do the work while holding the drum side of each coaster.



- ② Attach the GL arm T assembly. Fix the stop washers in the correct position, using new stop washers.



- ③ Attach the GL arm S assembly while checking the phase of each part. Fix the stop washers at the correct position, using new stop washers.



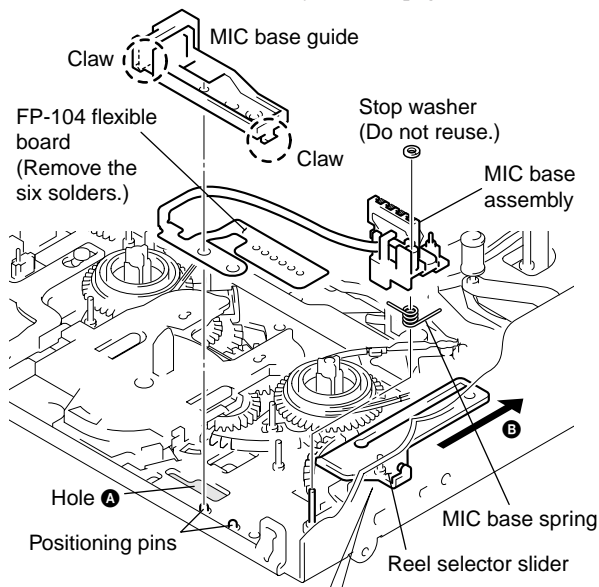
Check each phase adjustment while referring to the above figure.

Hole A of the GL gear T and hole B of the GL gear S must face each other. Hole D of the loading arm assy must be aligned with the hole of the chassis, and the endmost gear tooth of the loading arm assy must face toward hole C of the GL gear S.

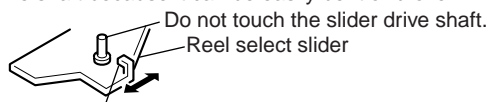
3-7. MIC BASE GUIDE, MIC BASE ASSEMBLY AND MIC BASE SPRING

Disassembly/Assembly

For the disassembling and assembling procedures of the components of the MIC base assembly, refer to page 5-21.



When selecting a cassette position, be careful not to touch the slider drive shaft because it can be easily bent or broken.



Select the desired cassette position by pressing the claw position.

Remove the six solders on the FP-104 flexible board from the rear of the chassis. Pass the flexible board through hole A and pull it out of the front side of the chassis while being careful not to damage it. To attach the flexible board, perform the steps of disassembly in reverse order.

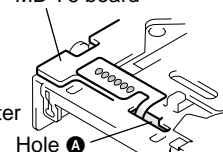
Six solders

Temperature of tip

of soldering iron : $350 \pm 20^\circ\text{C}$

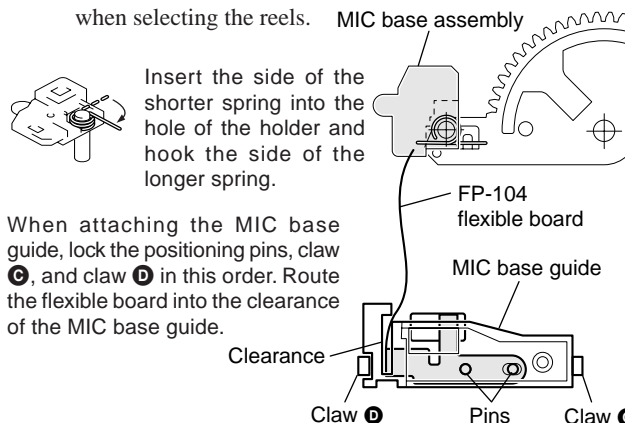
Hold time : one second or shorter

MD-76 board



Move the reel selector slider in the direction of arrow B and attach the MIC base assembly at the position of "S cassette". For the assembly of the MIC base spring, refer to the figure.

Note: Do not hold the shaft when selecting the reels.

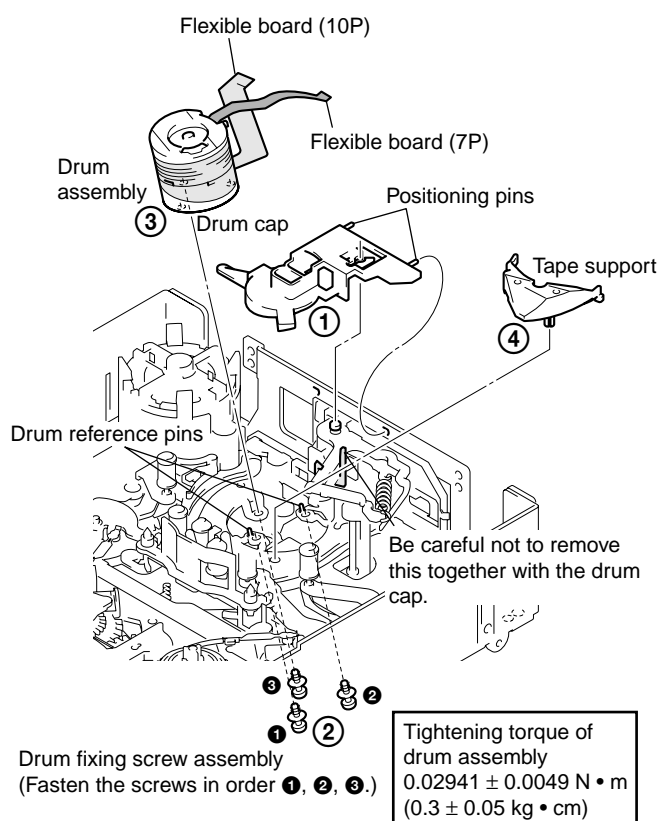


When attaching the MIC base guide, lock the positioning pins, claw C, and claw D in this order. Route the flexible board into the clearance of the MIC base guide.

3-8. DRUM CAP, DRUM ASSEMBLY AND TAPE SUPPORT


Disassembly: Remove them in order of ①→②→③

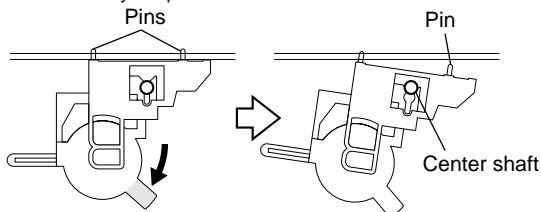
For the disassembly and assembling procedures of the components of the drum assembly, refer to page 5-22.




Assembly: Attach the parts while referring to the disassembly procedure and the figure below.

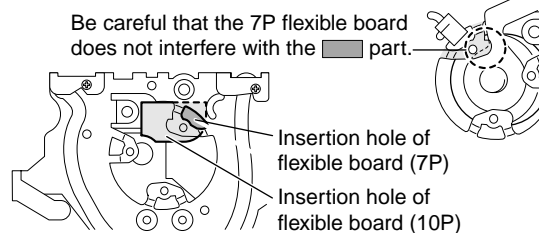
(After assembling, adjust the tape path while referring to page 5-23 and thereafter.)

Assembly and disassembly of the drum assembly
When pulling the  part in the direction of the arrow, the claw is removed from the center shaft, then the right pin and the drum cap are removed as shown in the figure on the right. To attach the drum assembly, perform the disassembly steps in reverse order.

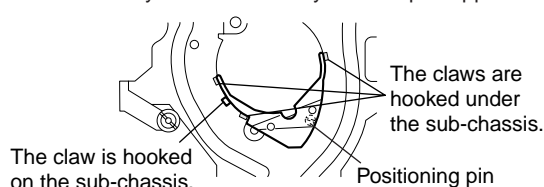


Assembly and disassembly of the drum assembly

Be careful that the 7P flexible board does not interfere with the  part.



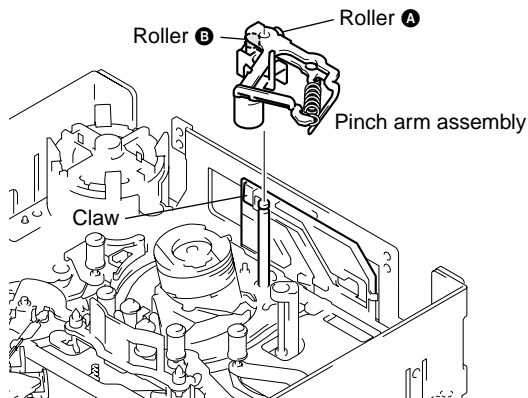
Assembly and disassembly of the tape support



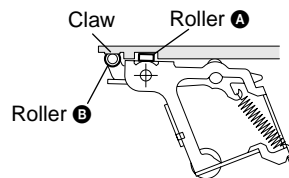
3-9. PINCH ARM ASSEMBLY

Disassembly/Assembly

For the disassembling and assembling procedures of the tape retainer and compression coil spring (tape retainer), refer to page 5-22.



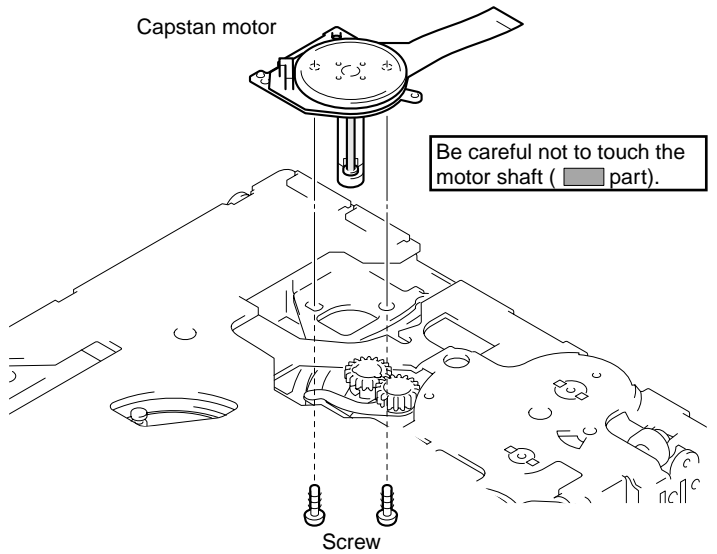
Push roller **A** into the groove as shown in the figure. Insert roller **B** into the claw. To remove the pinch arm assembly, pull out the pinch arm upward while pushing the claw.



3-10. CAPSTAN MOTOR

Disassembly/Assembly

(After assembling, adjust the tape path from page 5-23.)

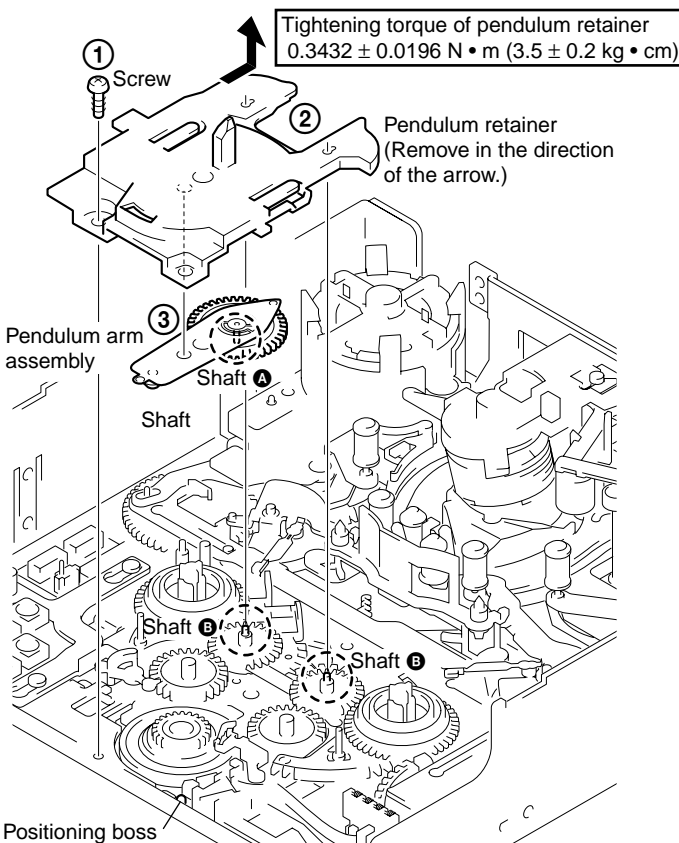


Tightening torque of capstan motor
 $0.1961 \pm 0.0196 \text{ N} \cdot \text{m}$ ($2.0 \pm 0.2 \text{ kg} \cdot \text{cm}$)

3-11. PENDULUM RETAINER AND PENDULUM ARM ASSEMBLY

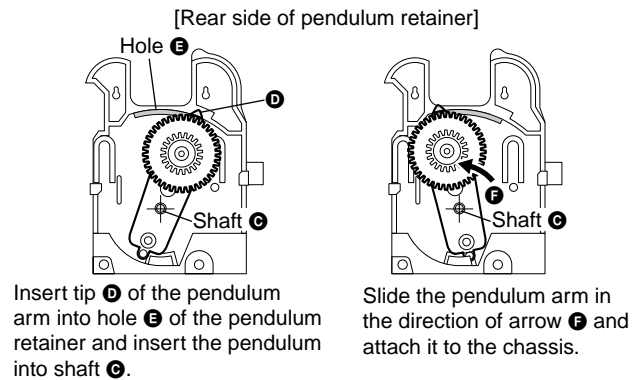
Disassembly: Remove them in order of ①→②→③

(To attach them, perform the disassembly steps in reverse order.)

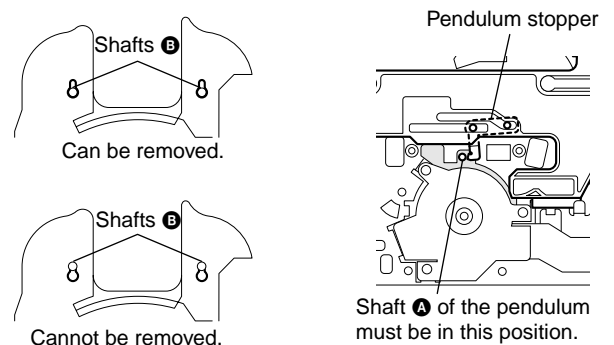


Notes during assembly

When assembling or disassembling the pendulum arm assembly, be careful of the following.

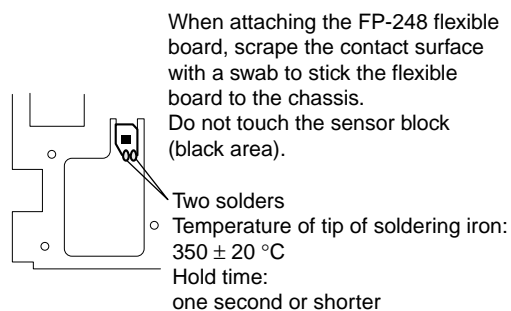
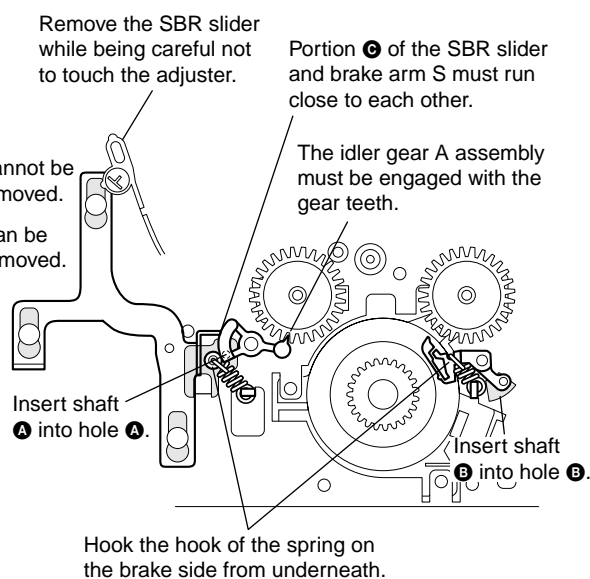
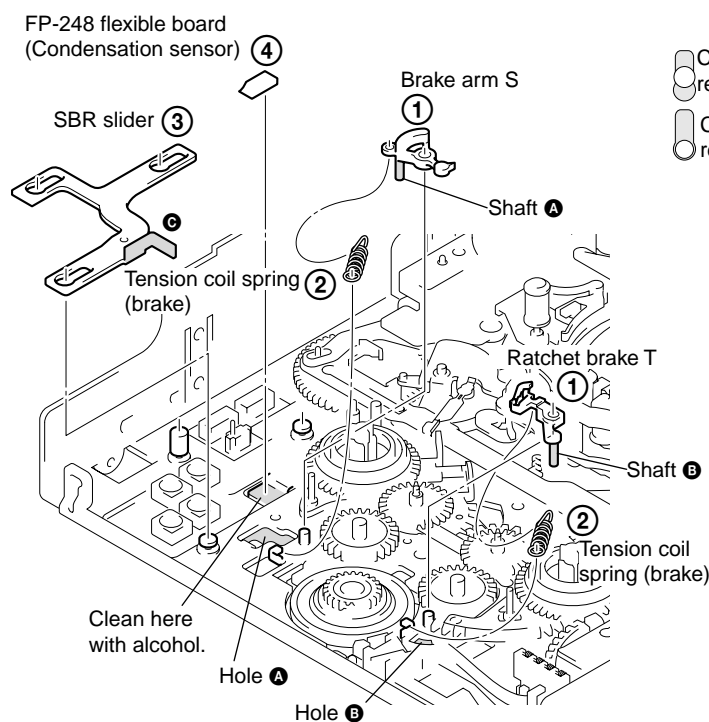


Attach the pendulum retainer to shaft **B**. Be careful of the positions of the pendulum stopper at the rear of the chassis and shaft **A** of the pendulum arm.



3-12. BRAKE ARM S, RATCHET BRAKE T, TENSION COIL SPRING (BRAKE), SBR SLIDER AND FP-248 FLEXIBLE BOARD (CONDENSATION SENSOR)

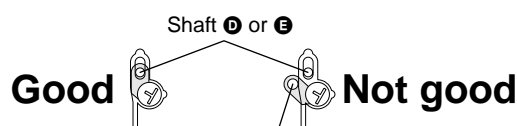
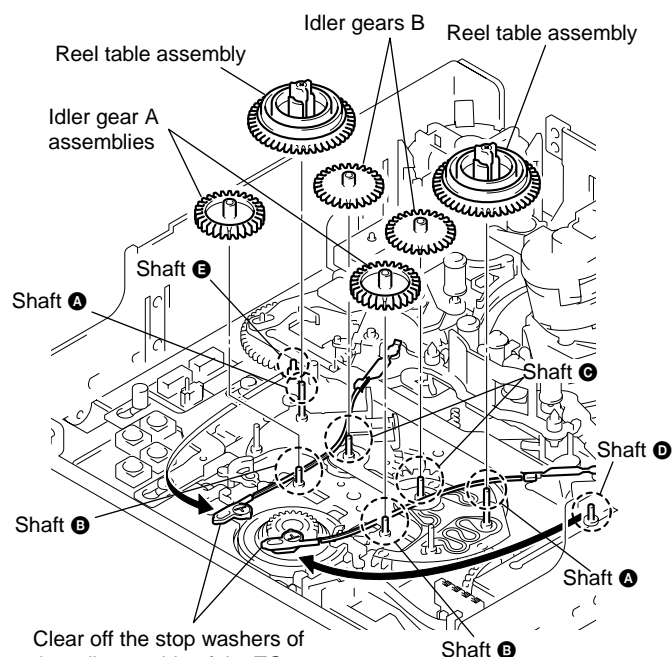
Disassembly: Remove them in order of ①→②→③→④
(To attach them, perform the disassembly steps in reverse order.)



3-13. REEL TABLE ASSEMBLY, IDLER GEAR A ASSEMBLY AND IDLER GEAR B

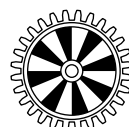
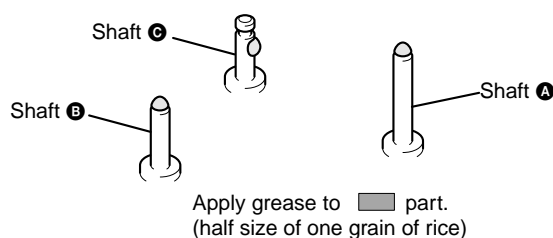
Disassembly/Assembly
(Do not touch the TG band block.)

When the reel table assembly is replaced or attached, perform each adjustment from Adjustment Start -1 of the flowchart on page 5-23.



When attaching the TG band, the part also must be inserted into shaft D or E.

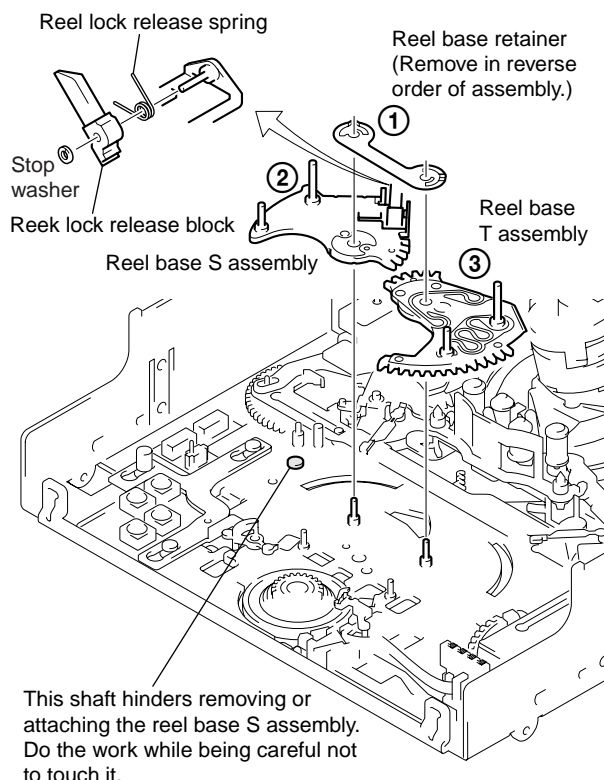
When attaching each gear, apply grease to each fixing shaft. Apply grease of half the size of one rice grain to the top side of shaft C. When attaching the idler gear A assembly, be careful not to apply grease to the reflection panel.



When attaching the idler gear A assembly, be careful not to apply grease to the reflection panel.

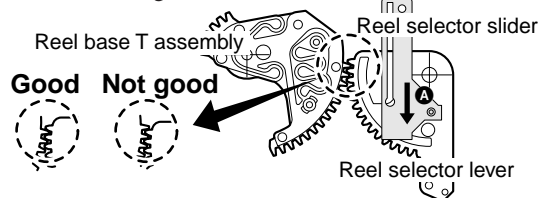
3-14. REEL BASE RETAINER, REEL BASE T ASSEMBLY AND REEL BASE S ASSEMBLY (REEL LOCK RELEASE BLOCK AND REEL LOCK RELEASE SPRING)

Disassembly: Remove them in order of ①→②→③
(Refer to Assembly, too.)

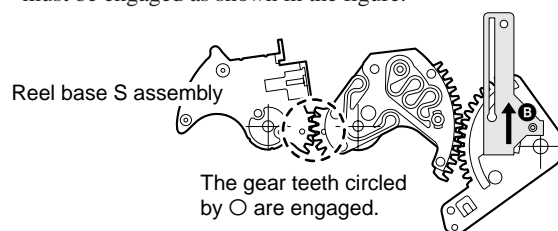


Assembly: Attach them in order of ①→②→③

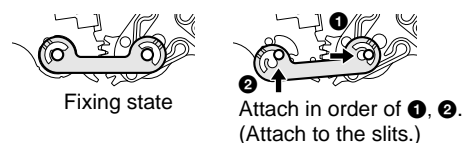
- ① Move the reel selector slider in the direction of arrow **A** to check that the reel selector lever is "L cassette". At this position, attach the reel base T assembly. The gear teeth must be engaged as shown in the figure.



- ② Move the reel selector slider in the direction of arrow **B** and switch the reel selector lever to "S cassette". At this position, attach the reel base S assembly. The gear teeth (circled by ○) must be engaged as shown in the figure.

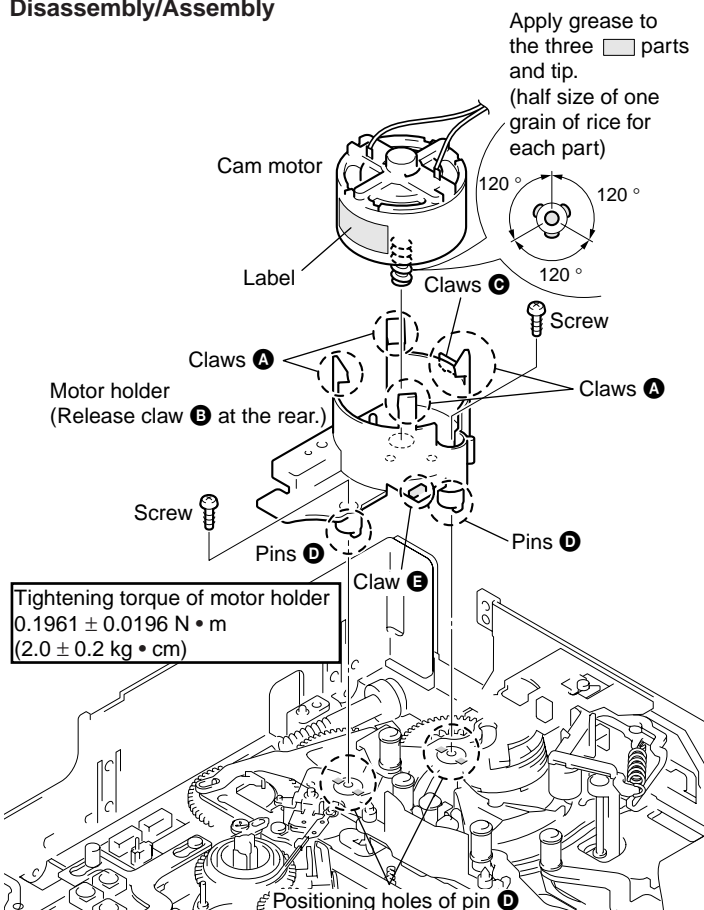


- ③ Attach the reel base retainer.



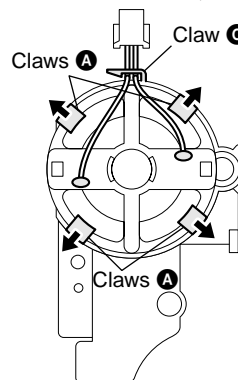
Note: Do not hold the shaft when selecting the reels.

3-15. CAM MOTOR, MOTOR HOLDER Disassembly/Assembly



Checks before disassembly and assembly

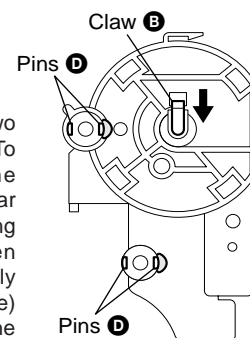
The cam motor is fixed on the motor holder by the four claws. Releasing the four claws enables the cam motor to be removed without removing the motor holder from the chassis. When attaching the cam motor, be careful of the assembling direction (the label must face toward the front). If the phase of the gear, etc. moves when removing the motor holder, refer to page 5-11.



[Front side of motor holder]
While spreading claws **A** in the direction of the arrow, pull out the cam motor upward. To attach it, push the cam motor into the motor holder and route the two wires of the cam motor into claw **C**.

When attaching the TG2 control arm, claw **E** must be inserted into the hole of the TG2 control arm.


[Rear side of motor holder]
The motor holder is fixed by the two screws and claw **B** at the rear. To remove it, push claw **B** in the direction of the arrow from the rear of the chassis. Note that positioning pins **D** are easy to break when attaching the motor holder. Apply grease (half size of one grain of rice) to the two parts shown in the right figure.



3-16. TG2/7 ARM BLOCK, TG2/7 BAND BLOCK AND TENSION COIL SPRING (TG2)/(TG7)

Disassembly: Remove them in order of ①→②→③→④

For the disassembling and assembling procedures of the assembly components of the TG2/TG7 arm, refer to page 5-22.

Be careful not to touch the tape guide ( part) and TG band block.

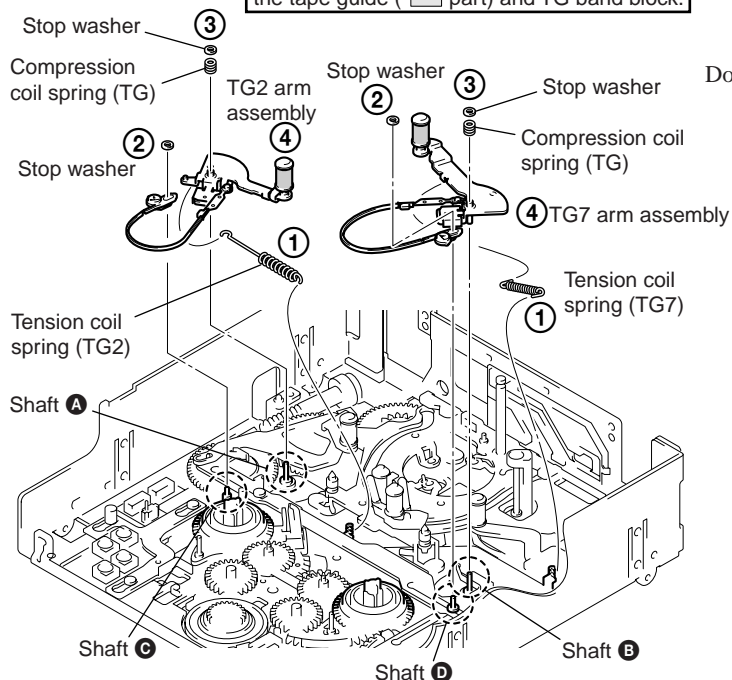


Fig. 1

Assembly: Attach them while referring to figure above or below and the descriptions.

When these parts are replaced or attached, perform each adjustment from Adjustment Start -3 of the flowchart on page 5-23.

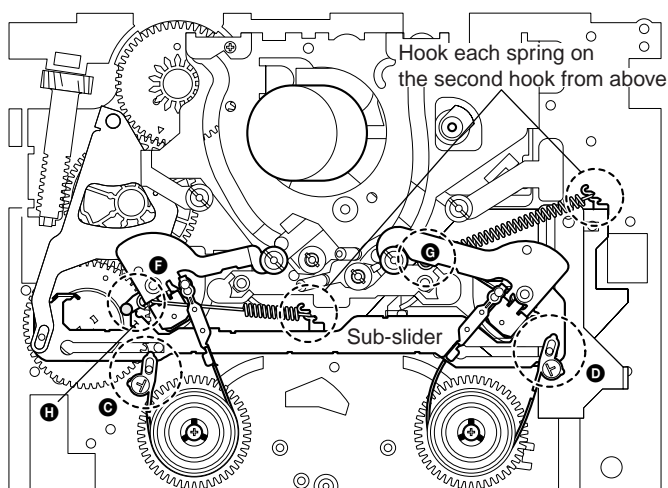


Fig. 3

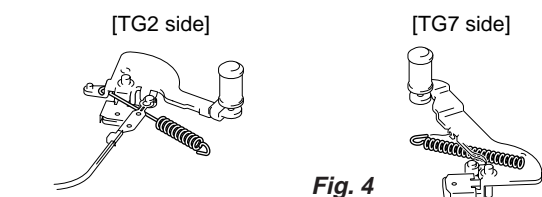


Fig. 4

Hook the spring from the inside and put it under the TG band.

Hook the spring from the outside and put it under the arm.

Notes during work

Be careful when handling the TG arm and the peripheral parts.

- Twisting and bending of the band and tension coil spring
- Dirt and scratches of the tape guide
- Loss of the compression coil spring (TG)

Do not reuse removed stop washers.

Disassembly of the band TG2/TG7 assembly

When pulling portion **E** of the TG2 or TG7 band in the direction of the arrow, a click sound is heard as the band is removed. To attach the bands, pull out the opposite side to portion **E** to lock.

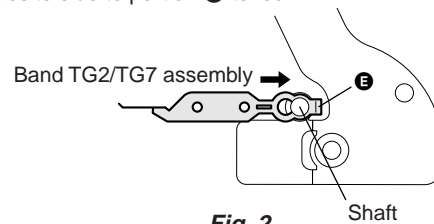
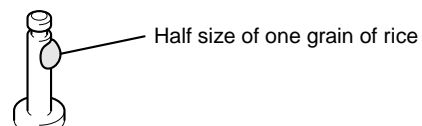

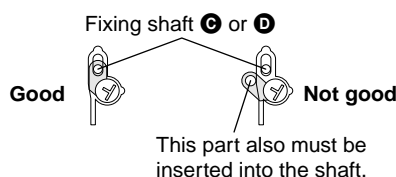


Fig. 2

- ① Apply grease to the top side of the fixing shaft (A or B) of the TG arm. (Fig. 1)



- ② Attach the TG band assembly to the TG arm assembly. (Fig. 2) Be sure that the felt sides of the TG band face toward the reel tables so that they surround the respective reel tables.
- ③ Attach the tension coil spring to the TG arm assembly. (Fig. 3, 4)
 - Hook the spring of the tension coil spring (TG2) from the inside and put it under the TG band. (Fig. 3-**F**, 4)
 - Hook the spring of the tension coil spring (TG7) from the outside and put it under the TG7 band. (Fig. 3-**G**, 4)
- ④ Attach the TG arm block to the shaft (A or B) and attach the tension coil spring to the second hook. When attaching the TG2 arm, the  part must be at the left of portion **H** of the slider. (Fig. 3)
- ⑤ Attach the adjuster of the TG band to shafts C and D.



- ⑥ Fix the TG band and TG arm with new stop washers. When attaching the TG arm, do not forget to attach the compression coil spring (TG). (Fig. 1)

3-17. SUB-SLIDER ARM, SUB-SLIDER, ENCODER GEAR, MAIN CAM GEAR, COUPLING GEAR, SUB-CAM GEAR, PINCH SLIDER AND LOADING ARM ASSEMBLY

Disassembly: Remove them in order of ①→②→③→④→⑤→⑥→⑦→⑧

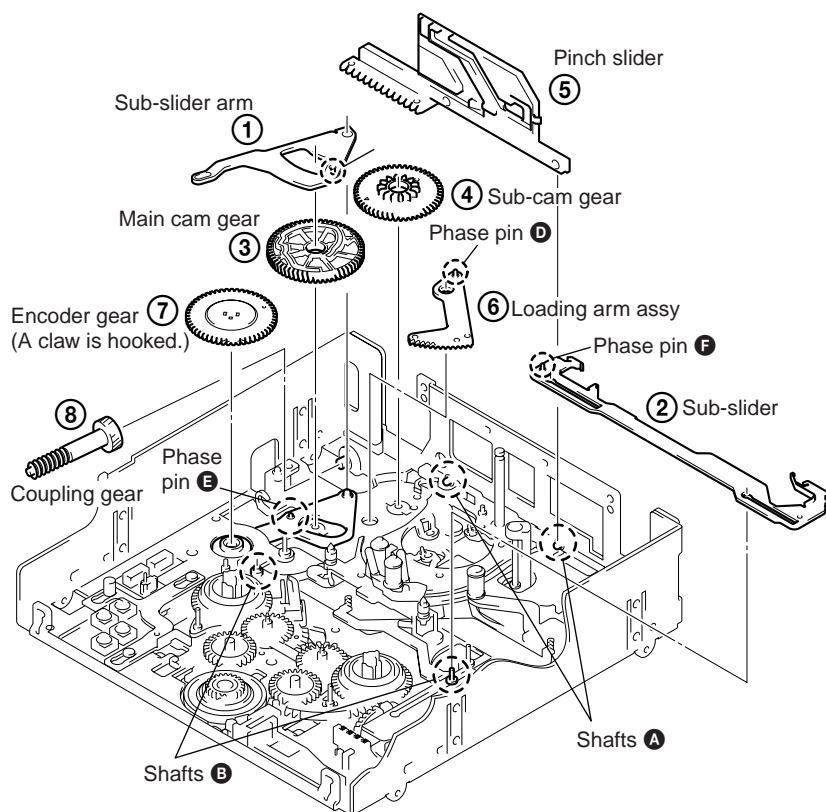


Fig. 1

Disassembly of the pinch slider

Move the pinch slider to the leftmost end, and slide it upward and remove it when two shafts **A** are superimposed on the holes of the pinch slider.

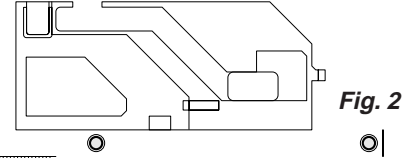


Fig. 2

Disassembly of the sub-slider

Move the sub-slider to the rightmost and remove it from two shafts **B**.

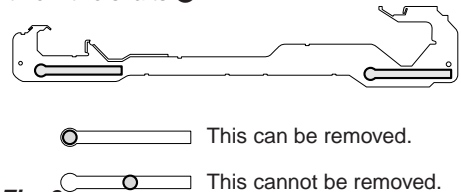


Fig. 3

Disassembly of the encoder gear

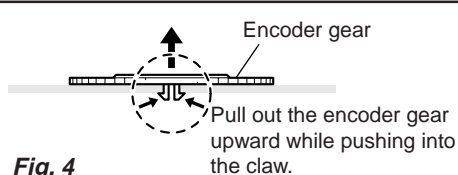


Fig. 4

Assembly: Attach them while referring to the figure above or below and the descriptions.

Check before work

When attaching the parts described in this section, various phase adjustments are required. Before work, refer to page 5-19 and check the reference phases.

[Rear side of chassis]

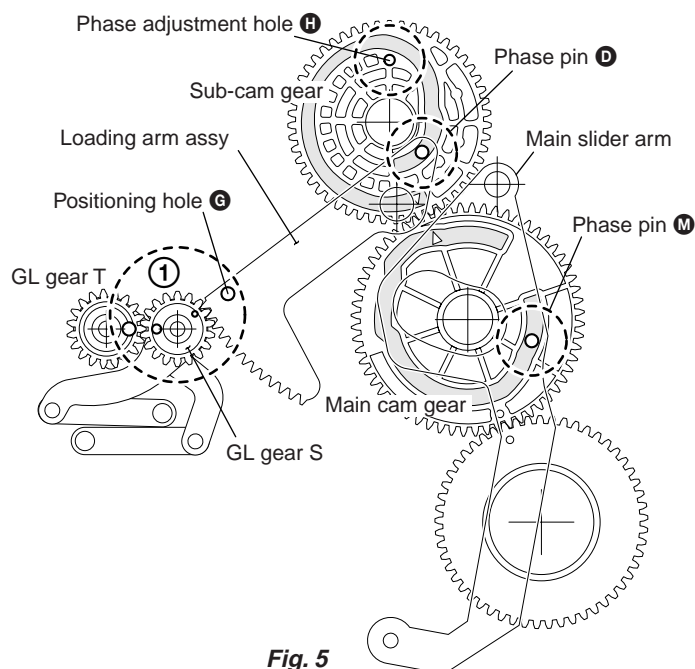


Fig. 5

- ① Attach the loading arm assy. (Refer to the figure above.) The phases of the GL gear S and GL gear T must match and the positioning hole **G** of the loading arm assy must be superimposed on the hole of the chassis. (Fig. 5)

- ② Attach the pinch slider. (Fig. 1, 2)

- ③ Apply grease to the groove at the rear of the sub-cam gear. (Fig. 6)
After applying, adjust the phase of the sub-cam gear to that of the pinch slider. (Fig. 7)
Phase pin **D** of the loading arm assy must be inserted into the groove at the rear of the sub-cam gear. (Fig. 5, 7)

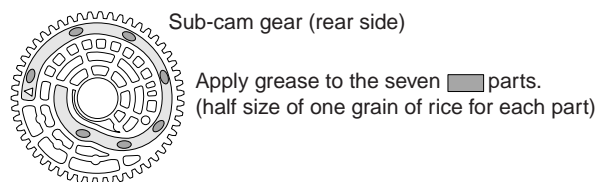


Fig. 6

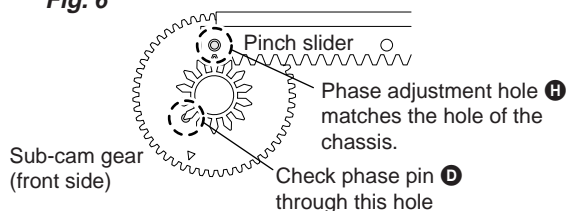


Fig. 7

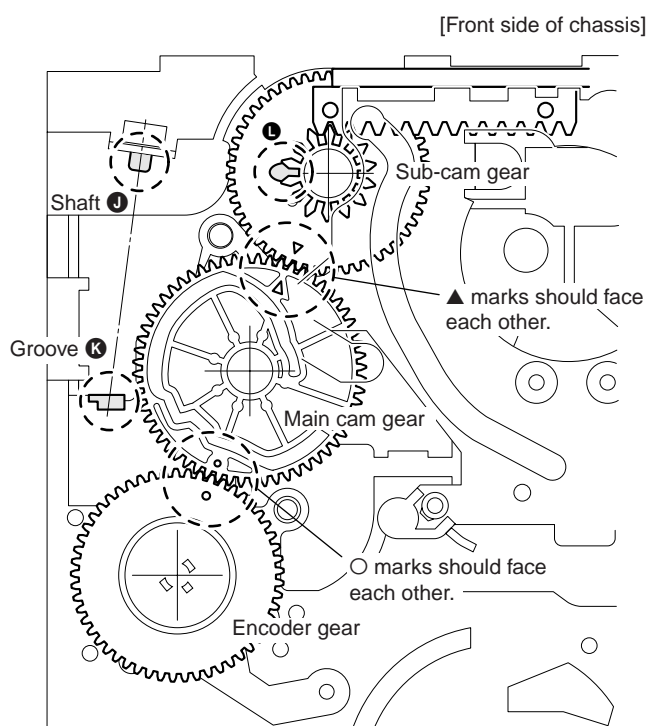


Fig. 8

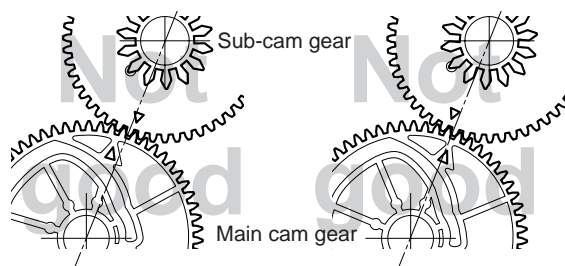


Fig. 11

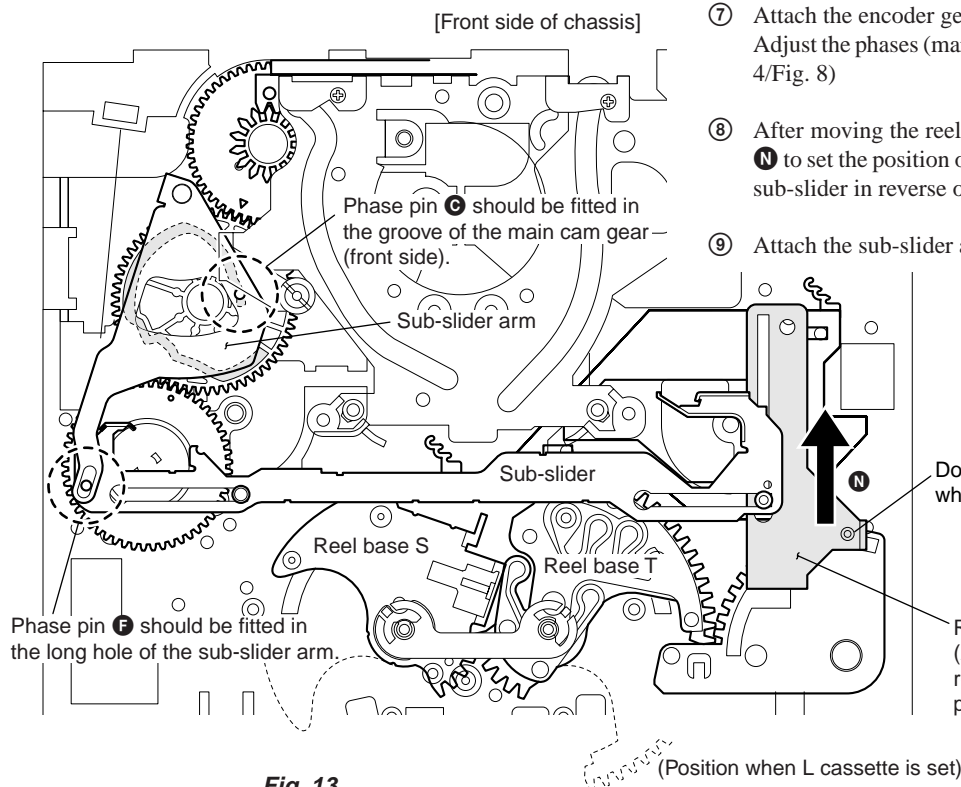


Fig. 13

- ④ Apply grease to the fixing block (shaft J and U-shaped groove K) of the coupling gear and portion L of the sub-cam gear (half size of one grain of rice for each part). (Fig. 8)

- ⑤ Attach the coupling gear. After attaching, apply grease while rotating the coupling gear by 120° each time. (Fig. 9, 10)

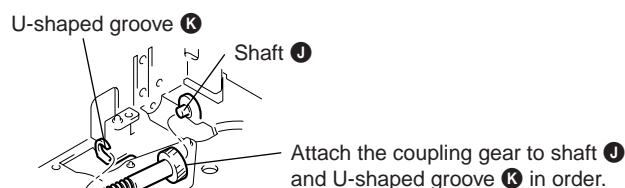



Fig. 9

Apply grease to the three  parts (half size of one grain of rice for each part).

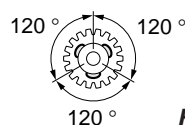


Fig. 10

- ⑥ Attach the main cam gear while being careful of the directions of the front and rear sides. Also, take care of the phase adjustment to the sub-cam gear. (Fig. 8, 11, 12)
Phase pin M of the main slider arm should be fitted in the groove of the main cam gear (rear side). (Fig. 5)

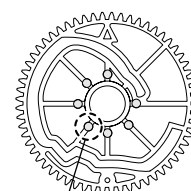
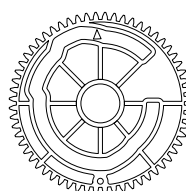


Fig. 12

- ⑦ Attach the encoder gear. (Fig. 3)
Adjust the phases (marked) to those of the main cam gear. (Fig. 4/Fig. 8)

- ⑧ After moving the reel selector slider in the direction of arrow N to set the position of the reel base to “L cassette”, attach the sub-slider in reverse order while referring to Fig. 3. (Fig. 13)

- ⑨ Attach the sub-slider arm. (Fig. 1/Fig. 13)

Do not hold the shaft when selecting the reels.

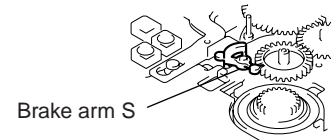
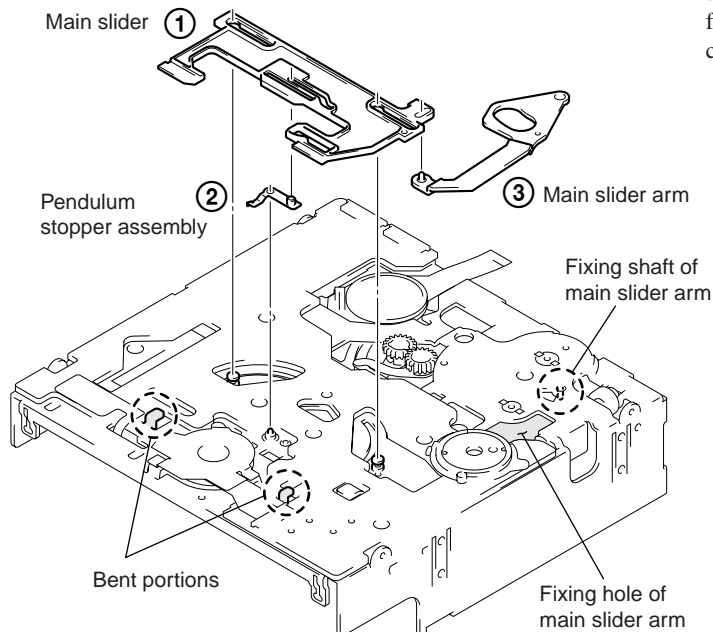
Reel selector slider
(After attaching the sub-slider arm, return the reel base to the original position (L cassette).)

3-18. MAIN SLIDER, MAIN SLIDER ARM AND PENDULUM STOPPER ASSEMBLY


Disassembly: Remove them in order of ①→②→③

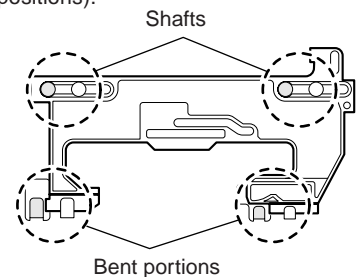
Disassembly of each part

The main slider controls several parts. Before removing the main slider, remove "Brake arm S" at the front of the chassis while referring to "Information" on page 5-4. Otherwise, the main slider cannot be removed.



Main slider

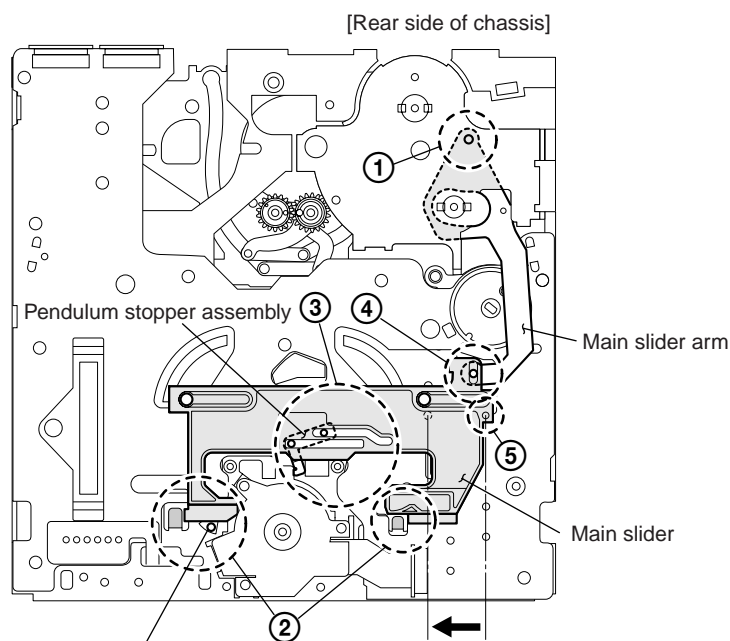
The main slider is fixed by the two shafts and the two bent portions at the rear of the chassis. The main slider can be removed when it is moved to the rightmost end ( positions).



Assembly: Attach them while referring to the figure above or below and the descriptions.

Assembly of each part

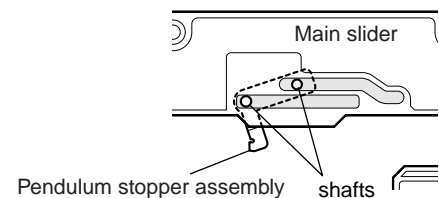
Attach each part while referring to the figure above or below. When attaching the parts, adjust the positions carefully while referring to the instructions in the figure below. Because these positioning will be used as a reference when assembling in future, make sure to adjust the positions and phases correctly.



The shaft of the ratchet brake T should be at the position where it can be viewed from the outside as shown in the figure.

Move the main slider so that the positioning holes are superimposed.

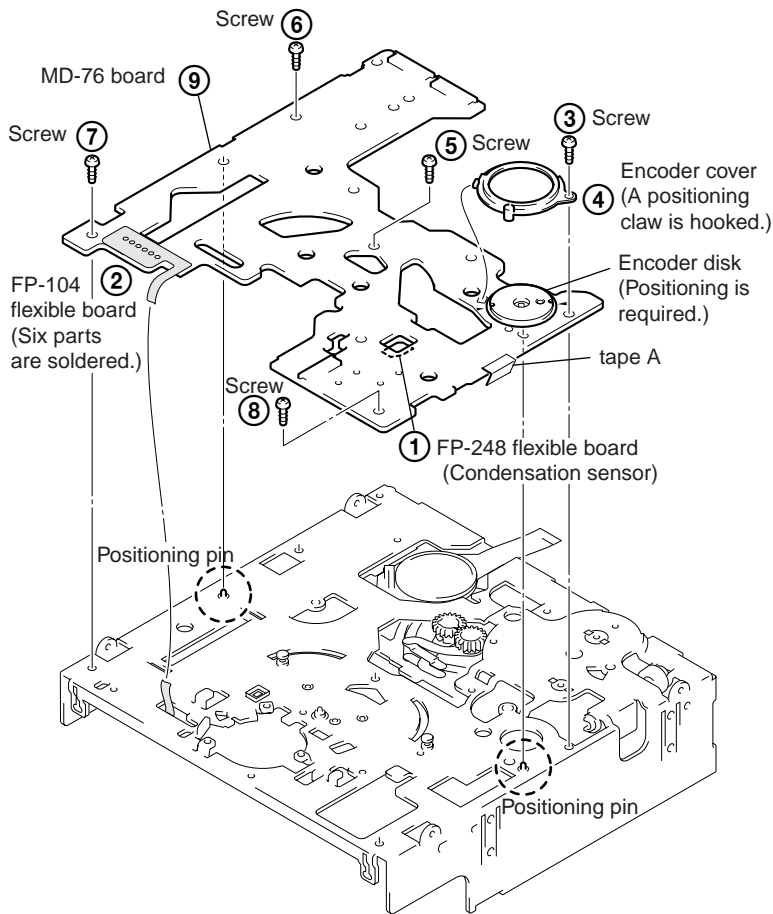
- ① Insert the main slider arm into the fixing hole and attach it to the fixing shaft at the front of the chassis while referring to the figure above. (To facilitate assembly, stick adhesive tape so that the main slider arm does not drop.)
- ② Perform assembly so that the main slider can pass under the bent portion of the chassis. If "Ratchet brake T" remains, move down the "Ratchet brake T" as shown in the left figure and attach the main slider.
- ③ Carefully attach the pendulum stopper assembly so that the two shafts fit in the two long holes of the main slider.



- ④ Attach the shaft of the main slider arm to the long hole of the main slider.
- ⑤ Move the main slider to the leftmost end so that the small positioning hole of the main slider is superimposed on the small positioning hole of the chassis, and fix the main slider. The position where the main slider is fixed will be used as a reference during assembling and phase adjustment in future.
(To avoid affecting the main unit, fix the reel motor and main slider with adhesive tape, etc.)

3-19. MD-76 BOARD AND ENCODER RETAINER

Disassembly: Remove them in order of ①→②→③→④→⑤→⑥→⑦→⑧→⑨



Disassembly of MD-76 board

Peel off the FP-248 flexible board at the front of the chassis (refer to page 5-14). Remove the six solders on the FP-104 flexible board from the rear of the chassis. Remove the screws in order of ③ to ⑧ shown in the figure. When removing the MD-76 board from the chassis, be careful not to let the sensors touch the chassis.

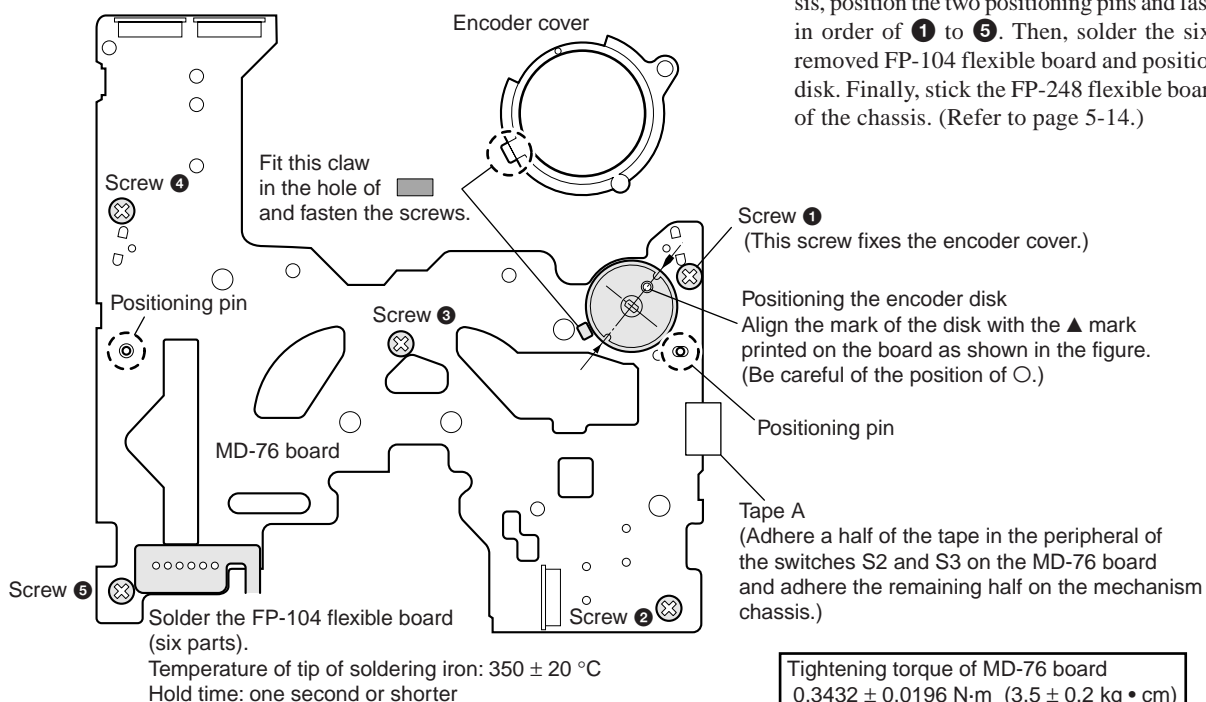
Note: When the tape A is removed, use the new tape A for replacement. (See the illustration below.)

FP-248 flexible board

Peel off the flexible board while being careful not to get the sensor block dirty or damage the sensor block.



Assembly: Attach them in order of ⑨→④→③→⑤→⑥→⑦→⑧→①→②
(Refer to the figure above or below.)



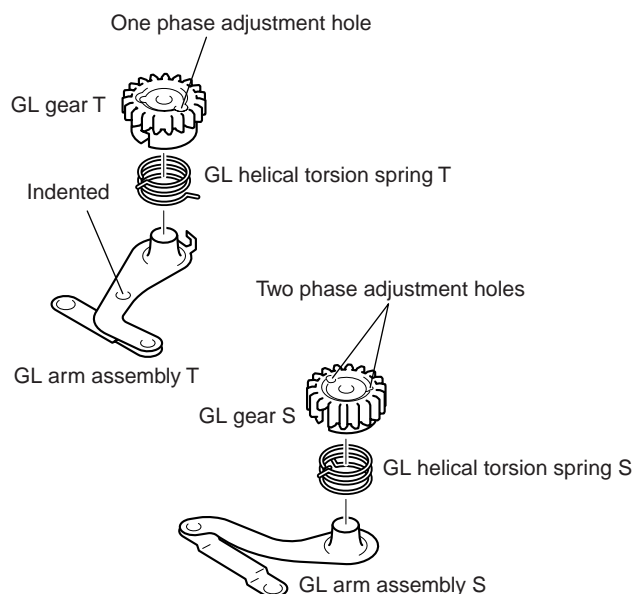
Assembly of MD-76 board

While being careful not to let the sensors touch the chassis, position the two positioning pins and fasten the screws in order of ① to ⑤. Then, solder the six parts on the removed FP-104 flexible board and position the encoder disk. Finally, stick the FP-248 flexible board on the front of the chassis. (Refer to page 5-14.)

Tightening torque of MD-76 board
 $0.3432 \pm 0.0196 \text{ N}\cdot\text{m}$ ($3.5 \pm 0.2 \text{ kg}\cdot\text{cm}$)

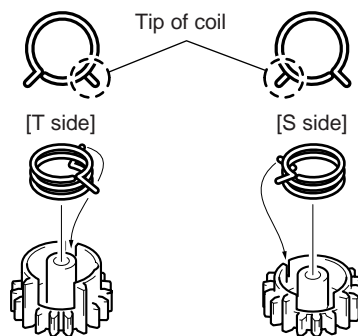
3-20. COMPONENTS OF GL ARM S/T ASSEMBLY (GL ARM ASSEMBLY, GL HELICAL TORSION SPRING, GL GEAR)

Disassembly and distinguishing the S side from the T side



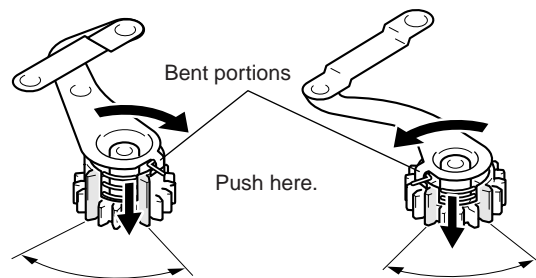
Assembly

- ① Attach each GL helical torsion spring to the GL gear. To distinguish the S side from the T side when the opening of the spring tip is facing toward the front, note that the coil tip of the S side is located on the left and that of the T side is located on the right.



Fit the tip of the spring into the small cut-out of the GL gear.

- ② Hook the tip of the spring on the bent portion of the GL arm assembly and push the bent portion of the GL arm into the large cut-out of the GL gear while rotating the GL gear in the direction of the arrow.

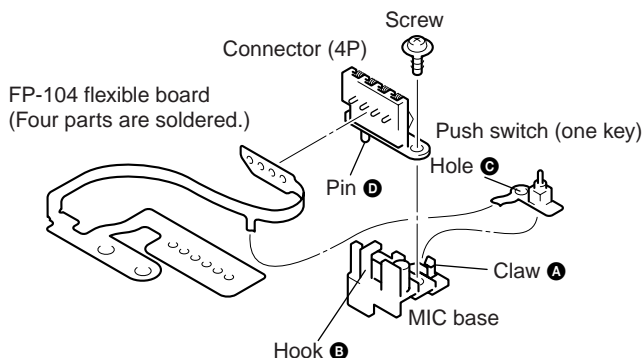


When the bent portion of the GL arm comes inside this range, push the bent portion into the gear.

3-21. COMPONENTS OF MIC BASE ASSEMBLY (FP-104 FLEXIBLE BOARD, MIC BASE)

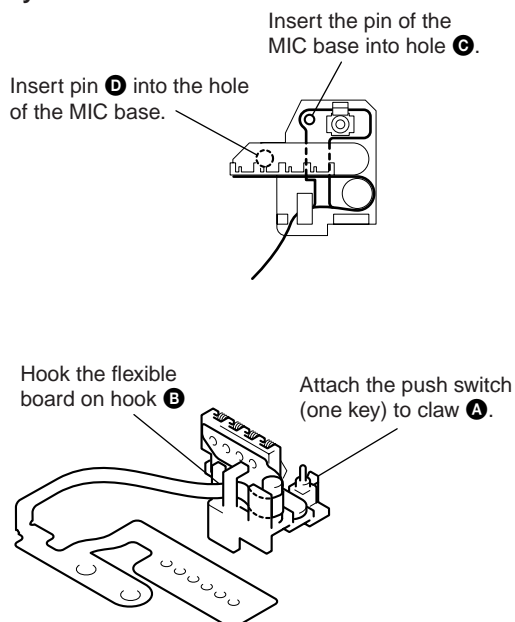
Disassembly

Remove the push switch from claw **A** of the MIC base. Remove the screw and connector (4P). Then, remove the flexible board while being careful not to touch hook **B**.



Tightening torque of connector (4P)
 $0.0392 \pm 0.0098 \text{ N} \cdot \text{m}$ ($0.4 \pm 0.1 \text{ kg} \cdot \text{cm}$)

Assembly



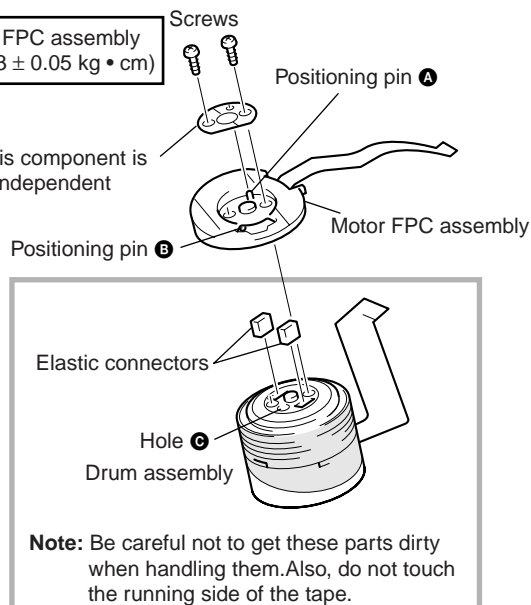
3-22. COMPONENTS OF DRUM ASSEMBLY (MOTOR FPC ASSEMBLY, ELASTIC CONNECTOR)

Disassembly/Assembly

Connect the elastic connector to the drum assembly and attach the motor FPC assembly while aligning pin **B** with hole **C** of the drum assembly. Fix the supporter plate with the screws while being careful of pin **A** of the motor FPC assembly.

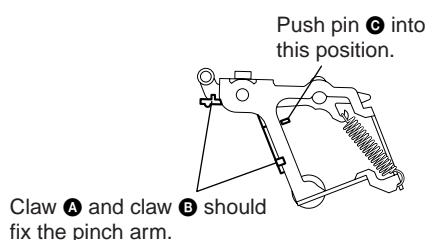
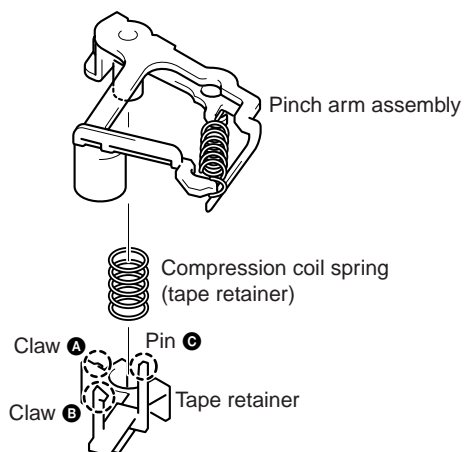
Tightening torque of motor FPC assembly
 $0.0294 \pm 0.0049 \text{ N} \cdot \text{m}$ ($0.3 \pm 0.05 \text{ kg} \cdot \text{cm}$)

Supporter plate (This component is not supplied as an independent repair part.)



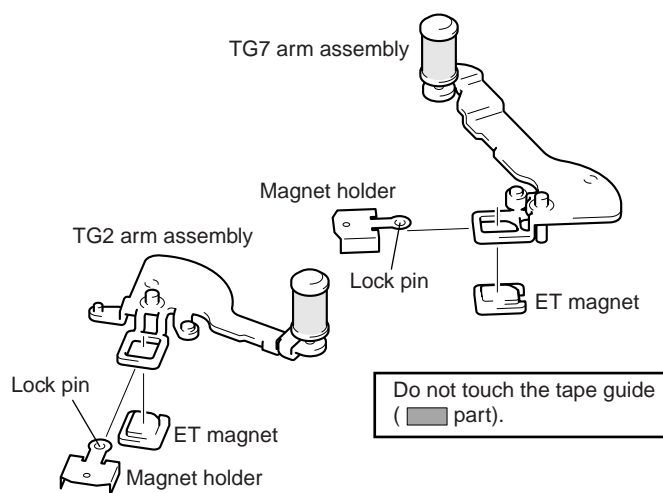
3-23. COMPONENTS OF PINCH ARM ASSEMBLY (TAPE RETAINER, COMPRESSION COIL SPRING)

Disassembly/Assembly

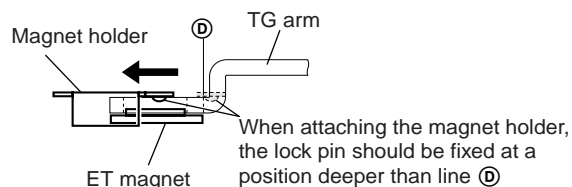


3-24. COMPONENTS OF TG2/7 ARM ASSEMBLY (ET MAGNET, MAGNET HOLDER)

Disassembly/Assembly



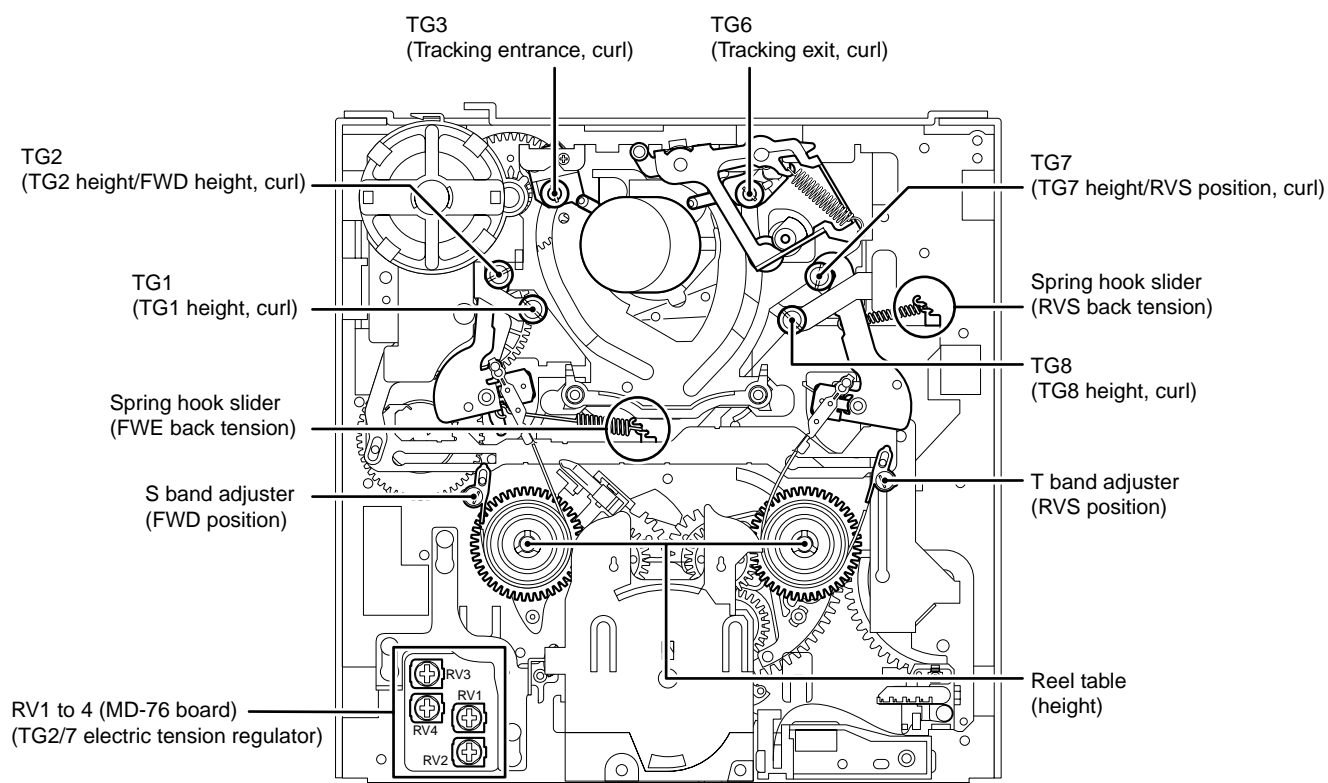
Remove the TG2 arm assembly and the TG7 arm assembly in the direction of the arrow while pushing the lock pin of the magnet holder from the rear of each TG arm. To attach them, insert the TG2 or TG7 arm assembly in the direction opposite to the arrow while holding the ET magnet with the magnet holder, then hook the lock pin.



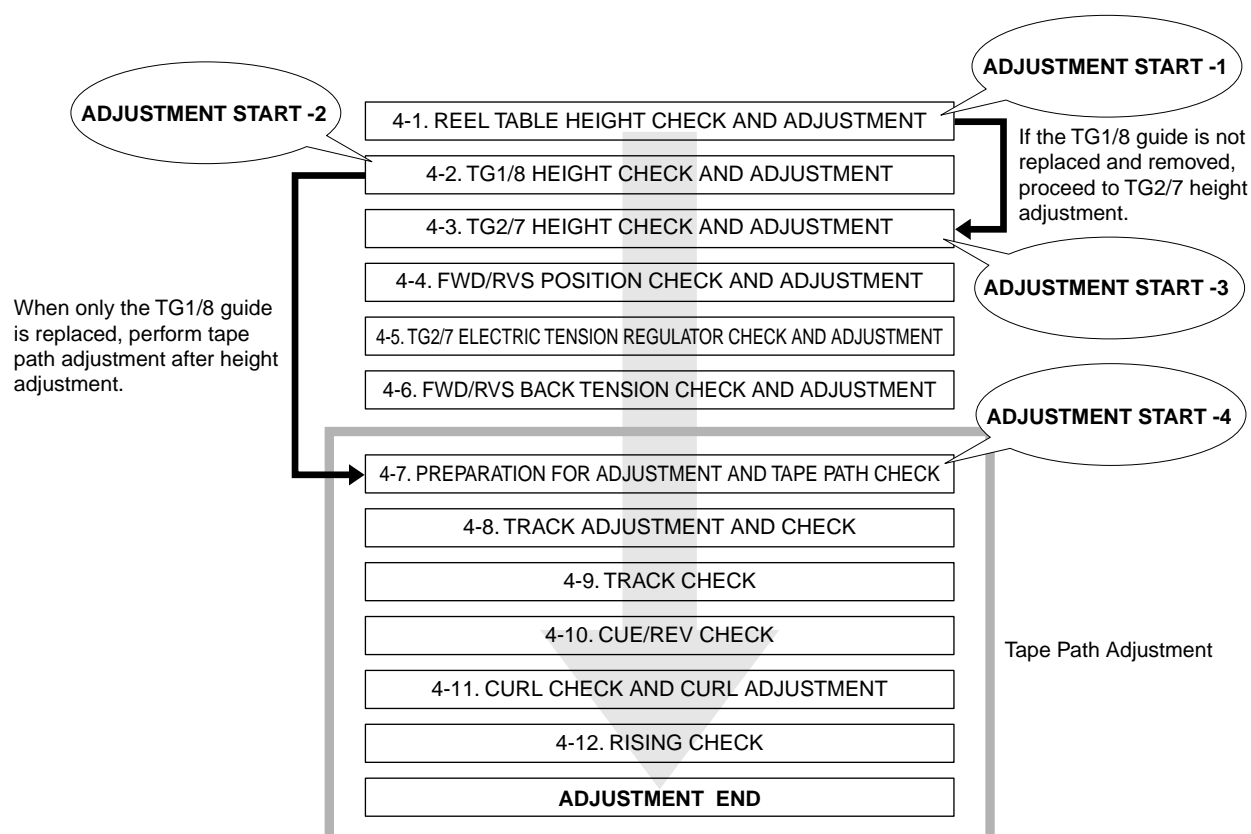
5-1-4. CHECK AND ADJUSTMENT

- When the parts of the tape path (tape guide, reel table, etc.) have been removed or parts have been replaced, adjust the following parts according to the flowchart below.

• ADJUSTMENT POSITION



• ADJUSTMENT ORDER (FLOWCHART)

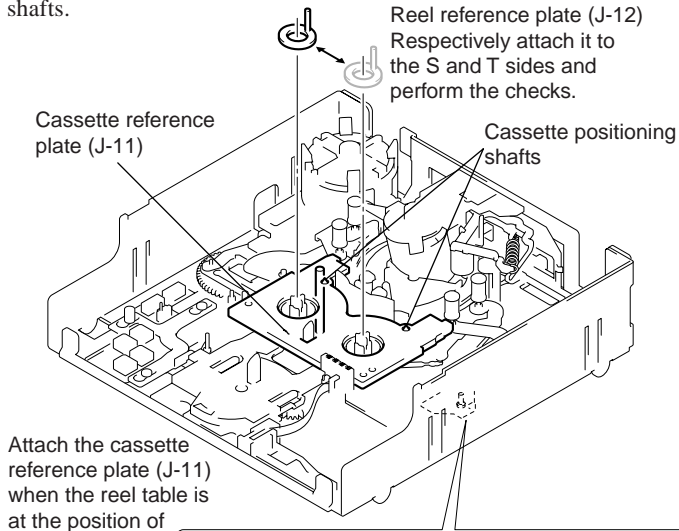


4-1. REEL TABLE HEIGHT CHECK AND ADJUSTMENT

1. Preparation before check

Check that the cassette compartment has already been removed.
(Refer to page 5-5.)

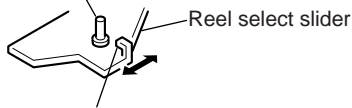
Fit the cassette reference plate (J-11) in the cassette positioning shafts.



Attach the cassette reference plate (J-11) when the reel table is at the position of "S cassette".

When selecting a cassette position, be careful not to touch the slider drive shaft because it can be easily bent or broken.

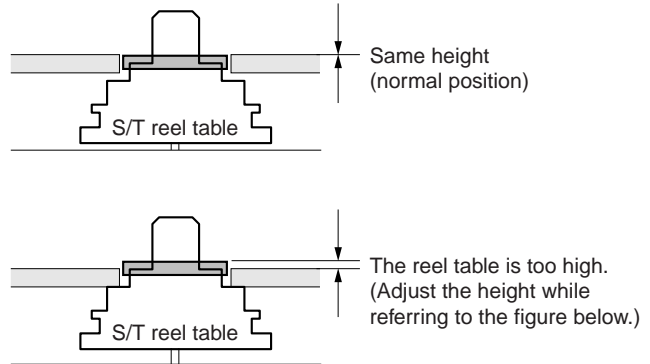
Do not touch the slider drive shaft.



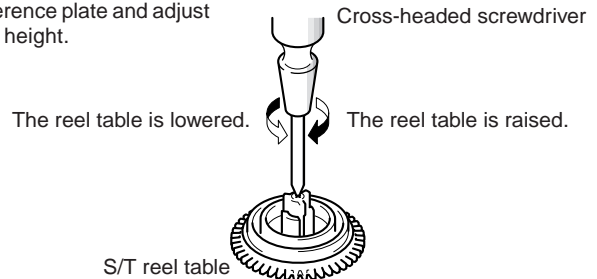
Select the desired cassette position by pressing the claw position.

2. Check and adjustment

Put the reel reference plate (J-12) on each reel table. Rotate the screw block of the reel table so that the height of the cassette reference plate is the same as that of the reel reference plate.



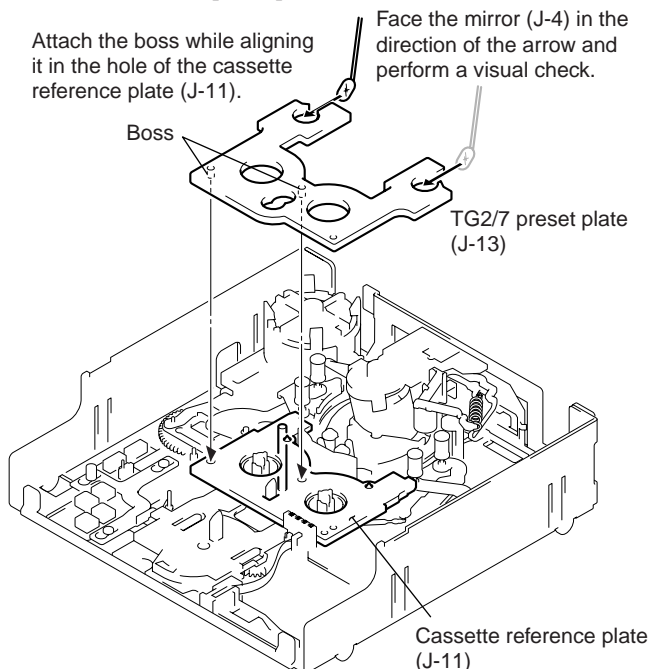
Put the reel and cassette reference plate and adjust the height.



4-2. TG1/8 HEIGHT CHECK AND ADJUSTMENT

1. Preparation before check

- 1) Check that the cassette compartment block has already been removed. (Refer to page 5-5.)
- 2) Set the mechanism deck to the loading end position (TG2 to 7 already moved to the loading end position and the pinch roller is in the unloading position). Alternatively, set the mechanism deck to the "LE position" using the mode selector II. (Refer to page 5-5.)
- 3) Place the TG2/7 preset plate (J-13).

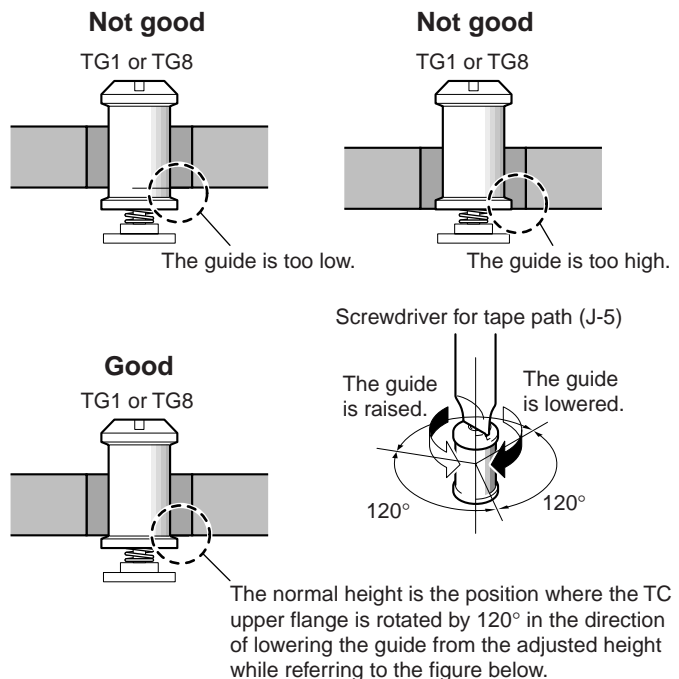


Attach the boss while aligning it in the hole of the cassette reference plate (J-11).

Face the mirror (J-4) in the direction of the arrow and perform a visual check.

2. Check and adjustment

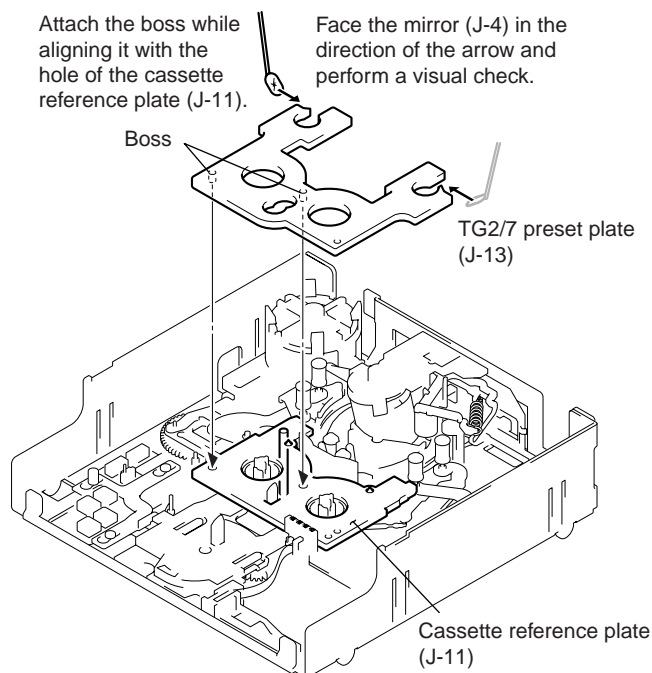
Rotate the TG upper flange until the heights of the TG2/7 preset plate (J-13) and TG1 or TG8 roller block are the same. Alternatively, rotate the TG upper flange by 120° in the direction of lowering the guide from the reference height where the preset plate and roller have the same height.



4-3. TG2/7 HEIGHT CHECK AND ADJUSTMENT

1. Preparation before check

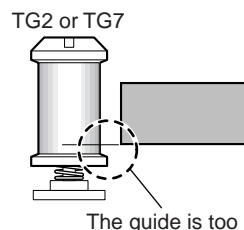
- 1) Check that the cassette compartment block has already been removed. (Refer to page 5-5.)
- 2) Set the mechanism deck to the loading end position (TG2 to 7 already moved to the loading end position and the pinch roller is in the unloading position). Alternatively, set the mechanism deck to the "LE position" using the mode selector II. (Refer to page 5-5.)
- 3) Place the TG2/7 preset plate (J-13).



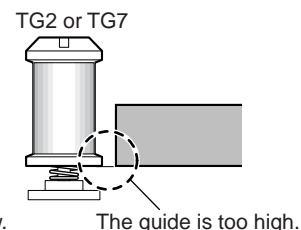
2. Check and adjustment

Rotate the TG upper flange until the height of the TG2/7 preset plate (J-13) and TG2 or TG7 roller block is the same. Alternatively, rotate the TG upper flange of only TG2 by 60° in the direction of raising the guide from the adjusted height while referring to the figure below.

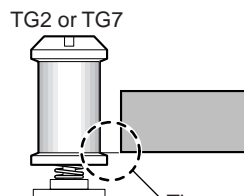
Not good



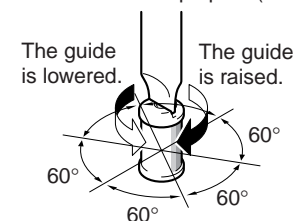
Not good



Good



Screwdriver for tape path (J-15)



The normal height of TG2 is the position where the TC upper flange is rotated by 60° in the direction of raising the guide from the adjusted height while referring to the figure below. The normal height of TG7 is the current one.

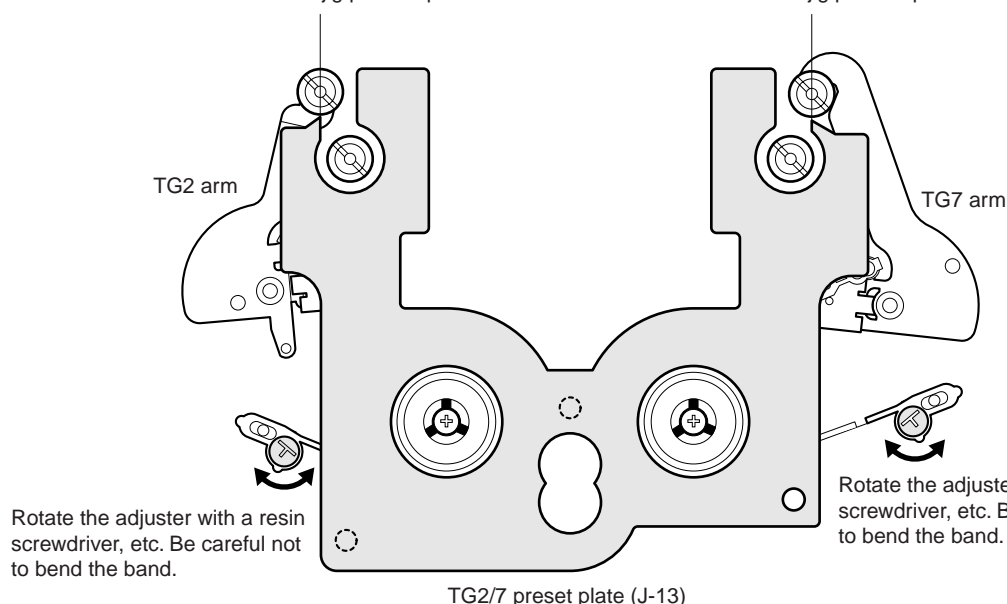
4-4. FWD/RVS POSITION CHECK AND ADJUSTMENT

1. Preparation before check

- 1) Check that the cassette compartment block has already been removed. (Refer to page 5-5.)
- 2) Set the mechanism deck to the loading end position (TG2 to 7 already moved to the loading end position and the pinch roller is in the unloading position). Alternatively, set the mechanism deck to the "LE position" using the mode selector II. (Refer to page 5-5.)
- 3) Place the TG2/7 preset plate (J-13).

Align the center of TG2 with the vertically extended line of the jig plate's tip as shown.

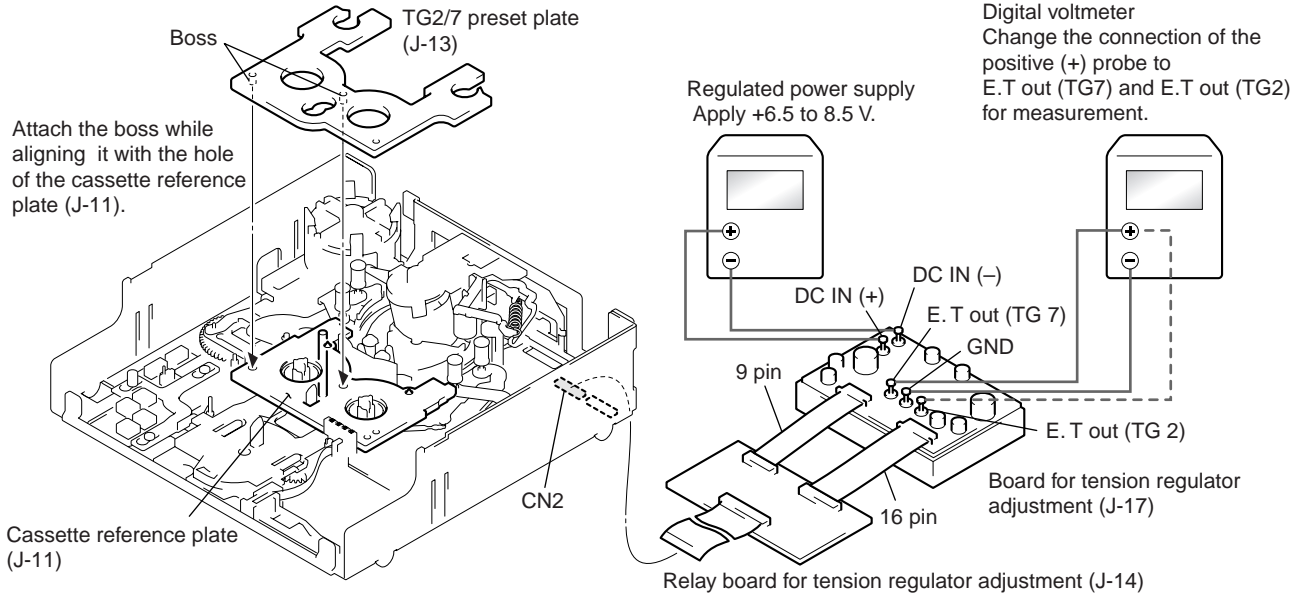
Align the center of TG7 with the vertically extended line of the jig plate's tip as shown.



4-5. ELECTRIC TENSION REGULATOR CHECK AND ADJUSTMENT OF TG2/7 ARM

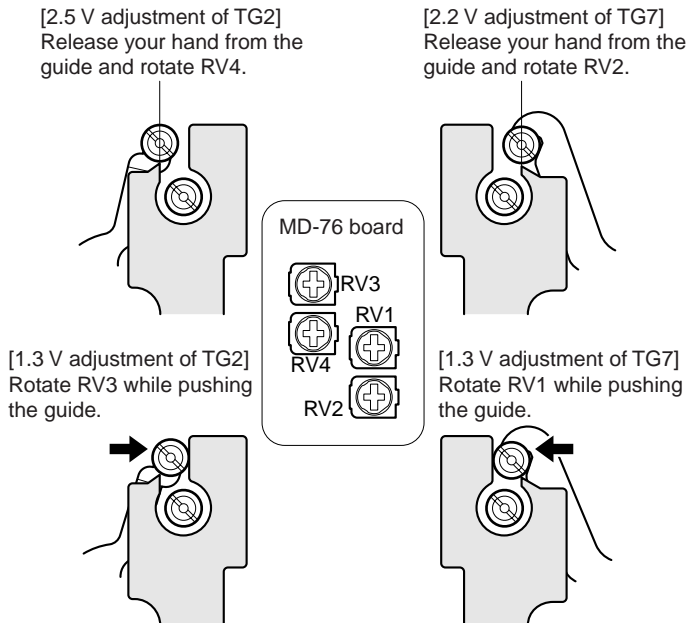
1. Preparation before check

- 1) Check that the cassette compartment block has already been removed. (Refer to page 5-5.)
- 2) Set the mechanism deck to the loading end position (TG2 to 7 already moved to the loading end position and the pinch roller is in the unloading position). Alternatively, set the mechanism deck to the "LE position" using the mode selector II (J-9). (Refer to page 5-5.)
- 3) Attach the cassette reference plate (J-11) and TG2/7 preset plate (J-13). (Refer to page 5-25.)
- 4) Connect the relay board for tension regulator adjustment (J-14) and other equipment as shown in the figure below.

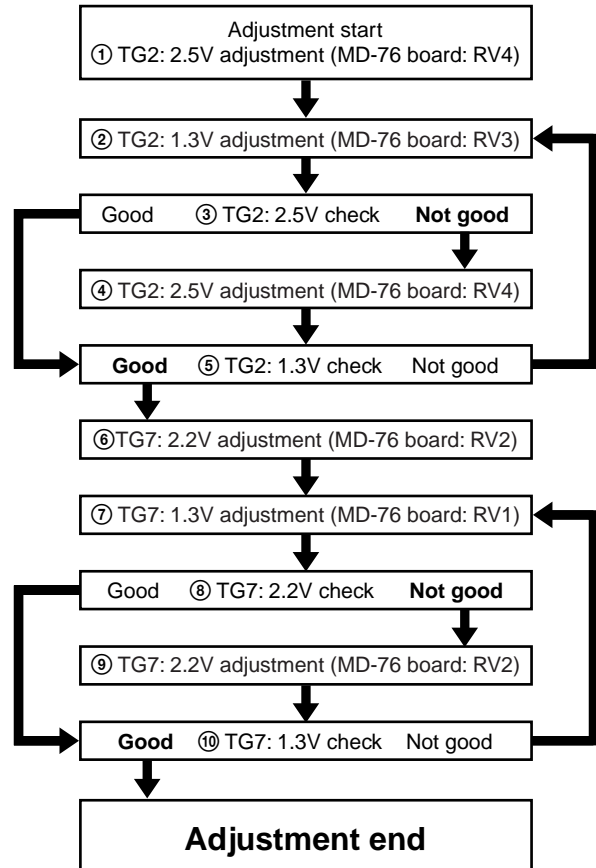


2. Check and adjustment

Connect the positive (+) probe of a digital voltmeter to E.T out (TG2: for measurement of TG2 data) or to E.T out (TG7: for measurement of TG7 data). First, press the guide to the TG2/7 preset plate (J-13), then release your hand from the guide and read the voltmeter value. Adjust RV4 (TG2 side) or RV2 (TG7 side) until the voltmeter measurement is 2.5 ± 0.1 V (TG2 side) or 2.2 ± 0.1 V (TG7 side) when releasing your hand. Then press the guide to the TG2/7 preset plate (J-13). Adjust RV3 (TG2 side) or RV1 (TG7 side) until the voltmeter measurement is 1.3 ± 0.1 V.



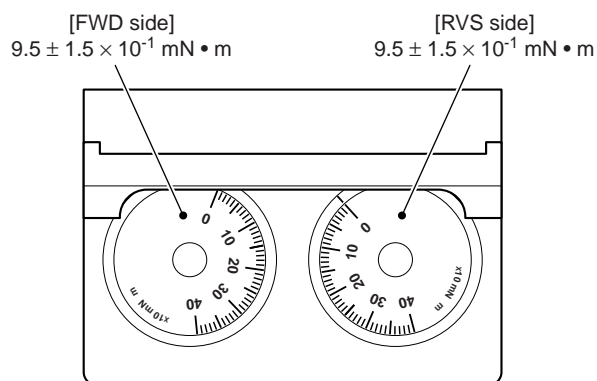
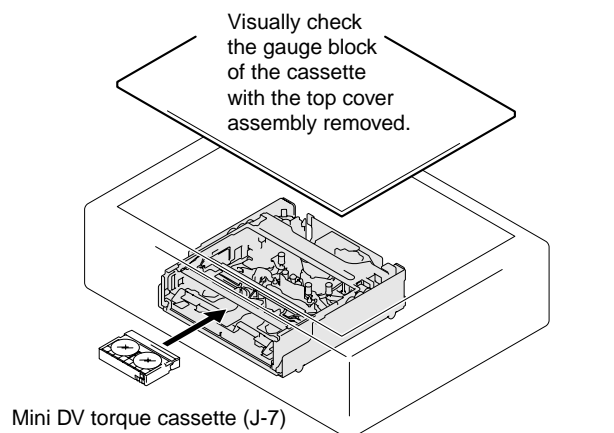
[Adjustment order]



4-6. FWD/RVS BACK TENSION CHECK AND ADJUSTMENT

1. Preparation before check

Mount the mechanism deck in the main unit, connect all the connectors, then insert the mini DV torque cassette (J-7) into the mechanism block.

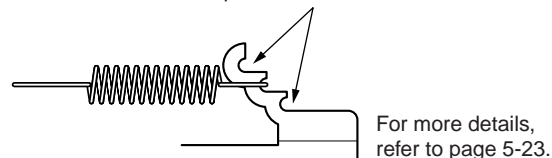


2. Check and adjustment

• FWD (TG2) side

The torque value should satisfy $9.5 \pm 1.5 \times 10^{-1} \text{ mN} \cdot \text{m}$ while the mini DV torque cassette runs in the FWD mode. If it does not satisfy this, take the following measure.

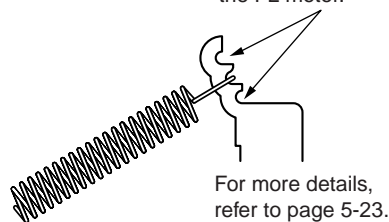
Re-attach the spring to the upper hook if the measurement value is beyond the specifications or re-attach the spring to the lower hook if the measurement value is below the specifications. Then, repeat the measurement.



• RVS (TG7) side

The torque value should satisfy $9.5 \pm 1.5 \times 10^{-1} \text{ mN} \cdot \text{m}$ while the mini DV torque cassette runs in the RVS mode. If it does not satisfy this, take the following measure.

Re-attach the spring to the upper hook if the measurement value is beyond the specifications or re-attach the spring to the lower hook if the measurement value is below the specifications. Then, repeat the measurement. Be careful that these spring blocks may hinder the FL motor.



4-7. PREPARATION FOR ADJUSTMENT AND TAPE PATH CHECK

Preparation before adjustment (connection and setting)

1. Mount the mechanism deck in the main unit.
(Connect all the connectors.)
2. Clean the tape running side.
(Refer to “5-1-2. Periodic check”.)
3. Connect an oscilloscope to RP-234 board CN201 via the CPC-13 jig (J-6082-388-A)(J-18).
Channel 1: RP-234 board, CN201 Pin ⑧ (Note)
External trigger: RP-234 board, CN007 Pin ⑥

Note: Connect a 75 Ω resistor between pins ⑧ of CN007 and ⑦ (GND).
75 Ω resistor (Parts code: 1-247-804-11)

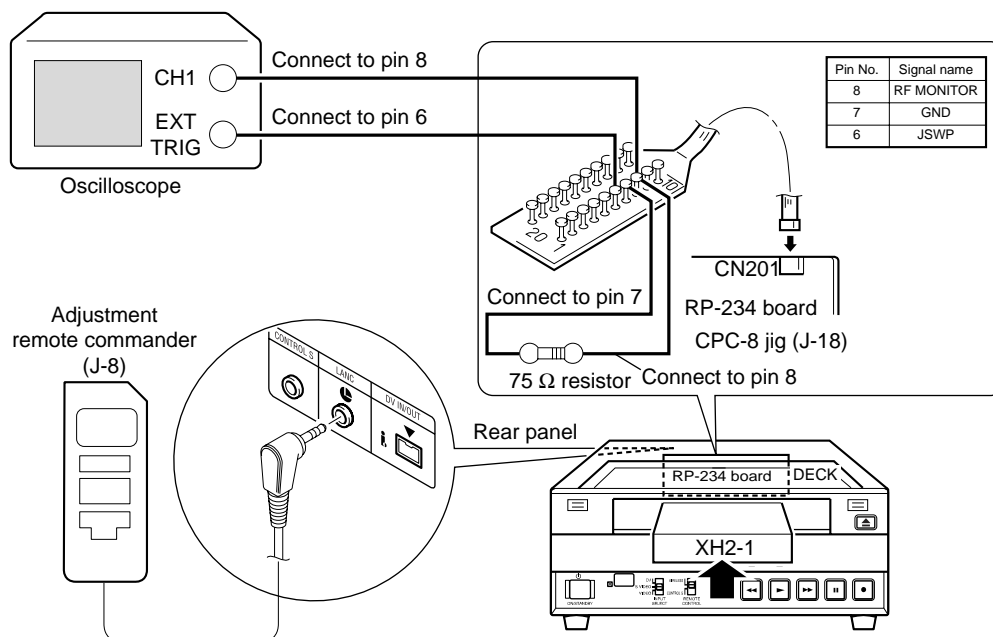
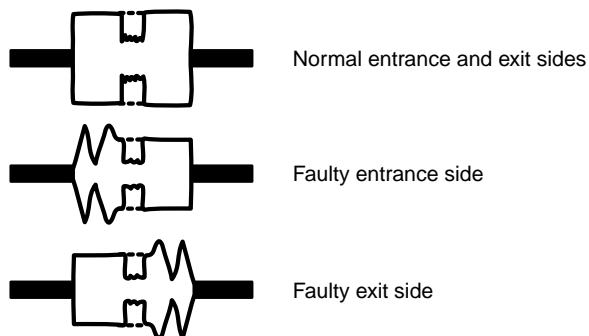
4. Connect the adjustment remote commander (J-8) to the CONTROL jack (LANC jack).
5. Turn the HOLD switch of the adjustment remote commander to the ON position.
6. Select page: 3, address: 33, set data: 08 and press the PAUSE button.
7. Select page: 3, address: 26, set data: 31 and press the PAUSE button.

Procedure after operations

1. Connect the adjustment remote commander to the CONTROL jack (LANC jack).
2. Turn the HOLD switch of the adjustment remote commander to the ON position.
3. Select page: 3, address: 33, set data: 00 and press the PAUSE button.
4. Select page: 3, address: 26, set data: 00 and press the PAUSE button.

Tape path check (checking the RF waveform)

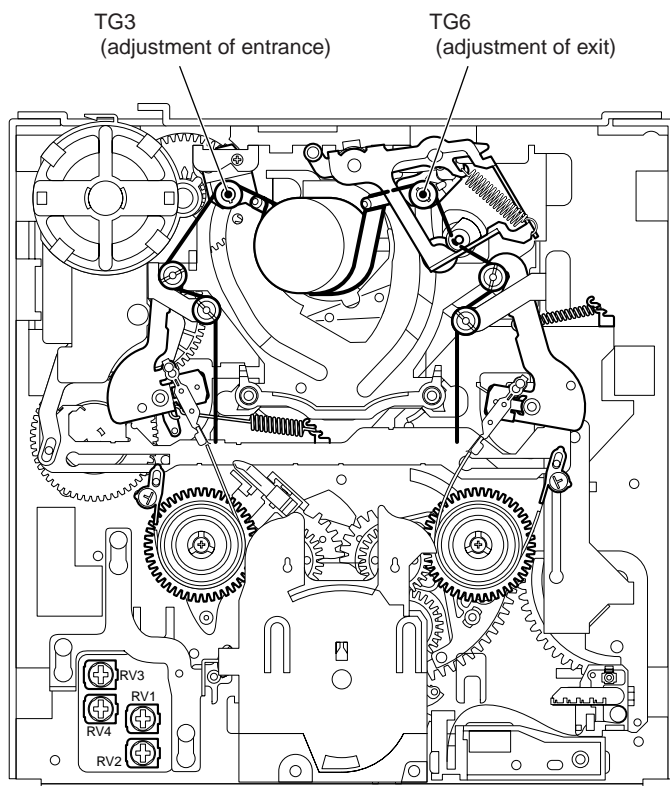
Play back the tracking tape (J-6) and check the states at the entrance and exit of the RF waveform. If it is not flat at either side, perform the adjustments from Adjustment Start-4 in the flowchart on page 5-23.



4-8. TRACK ADJUSTMENT AND CHECK (Checking the RF Waveform)

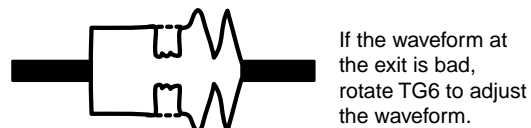
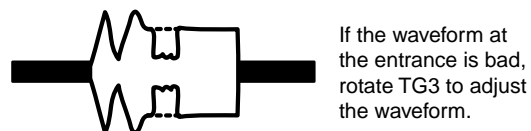
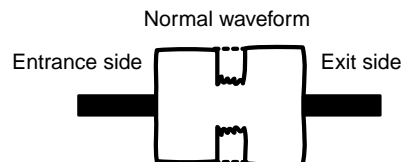
• Checking the RF waveform

Check that the RF waveforms at both the entrance and exit are flat while the tracking tape (J-6) runs in the PLAY mode.



• If not flat

If the waveform at the entrance is bad, rotate TG3. If the waveform at the exit is bad, rotate TG6 to flatten the waveform.

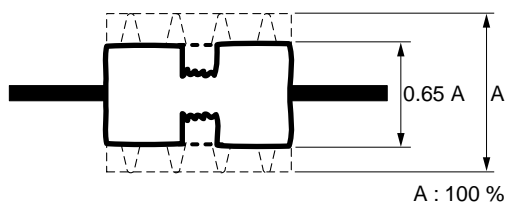


4-9. TRACK CHECK

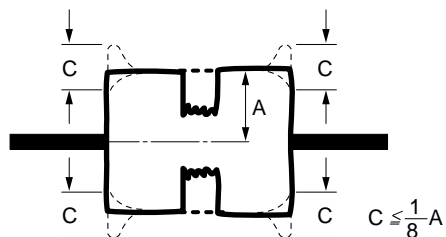
• Check

The difference between the maximum value and minimum value of the waveform amplitude during playback of the tracking tape (J-6) in the FWD mode should be 30% or less of the waveform amplitude during the CUE (or REV) mode (which is taken as 100% as shown). At the same time, there must not exist too much fluctuation of waveform amplitude.

Tracking waveform check -1

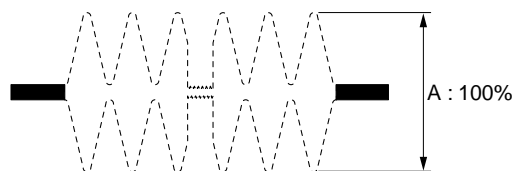


Tracking waveform check -2

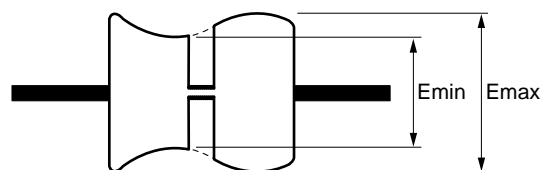


The waveform should not change sharply.

[Waveform in CUE or REV mode]



[Waveform in FWD mode]



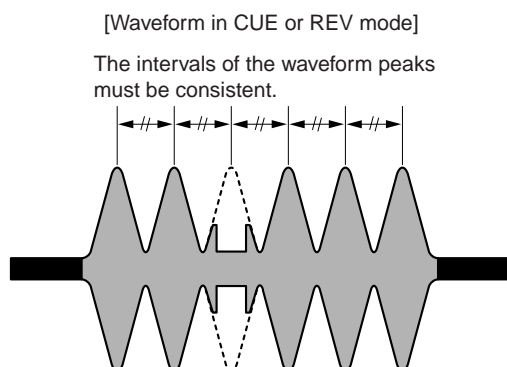
Emin: Minimum value
Emax: Maximum value

$$(E_{min} - E_{max}) \leq 30\% \text{ or } \left(\frac{3}{10}\right) A$$

4-10. CUE/REV CHECK

• Check

Check that the intervals of the waveform peaks are consistent while the tracking tape (J-6) runs in the CUE mode or REV mode.



• If not even

If the waveform peaks are not even, perform Section 4-8, "Tacking adjustment".

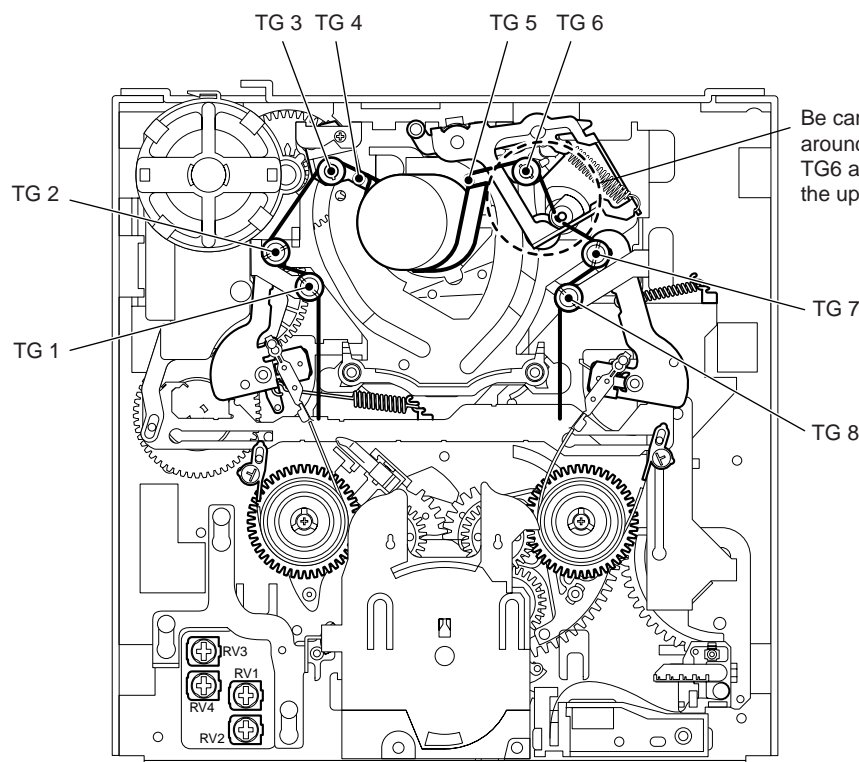
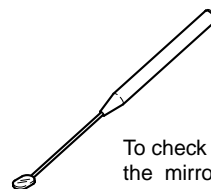
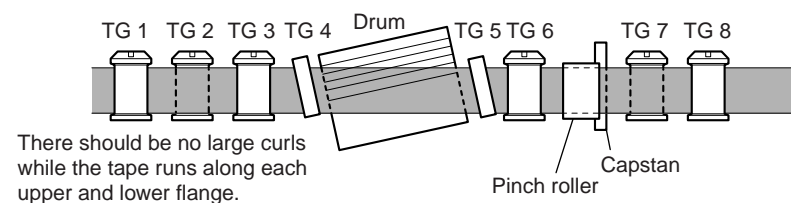
4-11. CURL CHECK AND ADJUSTMENT

• Check

Check that the tape runs along each upper and lower flange while the tracking tape (J-6) runs in the CUE or REV mode. Also check that there are no large curls on each tape guide and pinch roller.

• If the curl is large

Perform the adjustment from Adjustment Start -3 (TG7 side) of the flowchart on page 5-23 again.

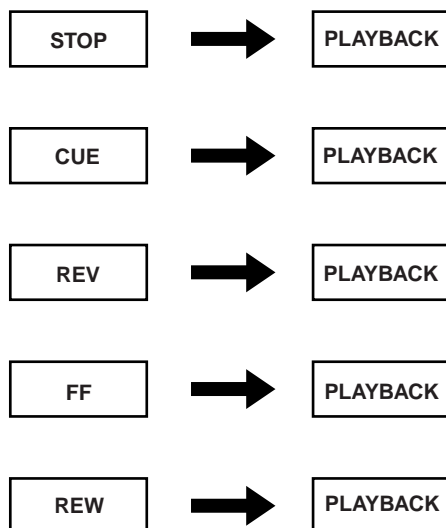


4-12. RISING CHECK

- **Check**

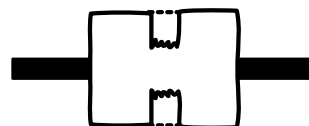
Check that when the tracking tape (J-6) is switched from the STOP, CUE, REV, FF, REW modes to the PLAYBACK mode, the waveform rises horizontally within 2 seconds. (Perform this 2 or 3 times.)

- **Check after checking rising**



- Check that the tape loads and unloads smoothly.
- Play a self-recorded or already recorded tape, and check that the sound and images are normal.

When switching the modes, the waveform should rise horizontally within 2 seconds.



5-2. SERVICE MODE
5-2-1. ADJUSTING REMOTE COMMANDER

The adjusting remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjusting remote commander performs bi-directional communication with the unit using the remote commander signal line (LANC). The resultant data of this bi-directional communication is written in the non-volatile memory.

1. Used Adjustment Remote Commander

- 1) With the unit set in STANDBY mode, connect the adjusting remote commander to the remote (LANC) terminal.
- 2) Adjust the HOLD switch of the adjusting remote commander to "HOLD" (SERVICE position).
- 3) Turn on the power with the ON/STANDBY switch of the unit. If it has been properly connected, the LCD on the adjusting remote commander will display as shown in Fig. 5-2-1.

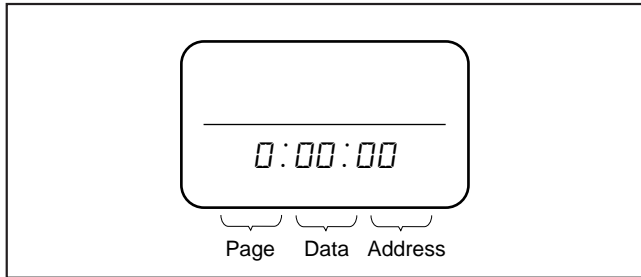


Fig. 5-2-1

- 4) Operate the adjusting remote commander as follows.
 - Changing the page
The page increases when the EDIT SEARCH + button is pressed, and decreases when the EDIT SEARCH – button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0 1 2 3 4 5 6 7 8 9 A B C D E F
LCD Display	0 1 2 3 4 5 6 7 8 9 A b c d E F
Decimal notation conversion value	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Table 5-2-1

- Changing the address
The address increases when the FF (▶▶) button is pressed, and decreases when the REW (◀◀) button is pressed. There are altogether 256 addresses, from 00 to FF.
- Changing the data (Data setting)
The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed. There are altogether 256 data, from 00 to FF.
- Writing the adjustment data
The PAUSE button must be pressed to write the adjustment data (C page, D page and E page) in the nonvolatile memory. (The new adjustment data will not be recorded in the non-volatile memory if this step is not performed.)

2. Precautions Upon Using the Adjusting Remote Commander

Mishandling of the adjusting remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

5-2-2. DATA PROCESSING

The calculation of the adjusting remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Table 5-2-2 indicates the hexadecimal notation- the decimal notation, calculation table.

Hexadecimal notation-Decimal notation															
The lower digits of the hexadecimal notation The upper digits of the hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	F
											(H)	(b)	(c)	(d)	(F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	159
A (H)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	175
①→ B (b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	191
C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	207
D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	255

Note : () indicate the adjusting remote control unit display.

(Example) In the case that the adjusting remote control unit display are BD (bd).
As the upper digit of the hexadecimal notation is B (b), and the lower digit is D (d), the intersection “189” of the ① and ② in the above table is the decimal notation to be calculated.

Table 5-2-2

5-2-3. SERVICE MODE

1. Setting the Test Mode

Page E	Address 10
--------	------------

Data	Function
00	Normal
02	Forced power ON

- Before setting the data, select page: 0, address: 01, and set data: 01.
- For page E, the data set will be recorded in the non-volatile memory by pressing the PAUSE button of the adjustment remote commander. In this case, take note that the test mode will not be exited even when the main power is turned off (12 Vdc).
- After completing adjustments/repairs, be sure to return the data of this address to 00, and press the PAUSE button of the adjustment remote commander. And select page: 0, address: 01, and set data: 00.

2. Emergence Memory Address

Page C	Address 38 to 43
--------	------------------

Address	Contents
38	EMG code when first error occurs
3A	Upper: MSW code when shift starts when first error occurs Lower: MSW code when first error occurs
3B	Lower: MSW code to be moved when first error occurs
3C	EMG code when second error occurs
3E	Upper: MSW code when shift starts when second error occurs Lower: MSW code when second error occurs
3F	Lower: MSW code to be moved when second error occurs
40	EMG code when last error occurs
42	Upper: MSW code when shift starts when last error occurs Lower: MSW code when last error occurs
43	Lower: MSW code to be moved when last error occurs

When no error occurs in this unit, data "00" is written in the above addresses (38 to 43). when first error occurs in the unit, the data corresponding to the error is written in the first emergency address (38 to 3B). In the same way, when the second error occurs, the data corresponding to the error is written in the second emergency address (3C to 3F).

Finally, when the last error occurs, the data corresponding to the error is written in the last emergency address (40 to 43).

Note 2: After completing adjustments, be sure to initialize the data of addresses 38 to 43 to "00".

Initializing method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: C, address: 38, set data: 00, and press the PAUSE button.
- 3) Select address: 39 to 43 and set data "00" into them in the same way as in address: 10.
- 4) Select page: 0, address: 01, and set data: 00.

3. EMG Code (Emergency Code)

Codes corresponding to the errors which occur are written in addresses 38, 3C, 3E. The type of error indicated by the code are shown in the following table.

Code	Error Type
00	No error (Initial state)
10	Loading motor time-out during LOAD
11	Loading motor time-out during UNLOAD
20	Error during tape take up
22	T reel error
23	S reel error
25	Reel motor error
30	Error during normal capstan rotation
40	FG error during drum start-up
42	FG error during normal drum rotation
50	DEW detection
52	Wet DEW detection
70	Cassette compartment LOAD error
71	Cassette compartment UNLOAD error
72	Retry error because something is caught

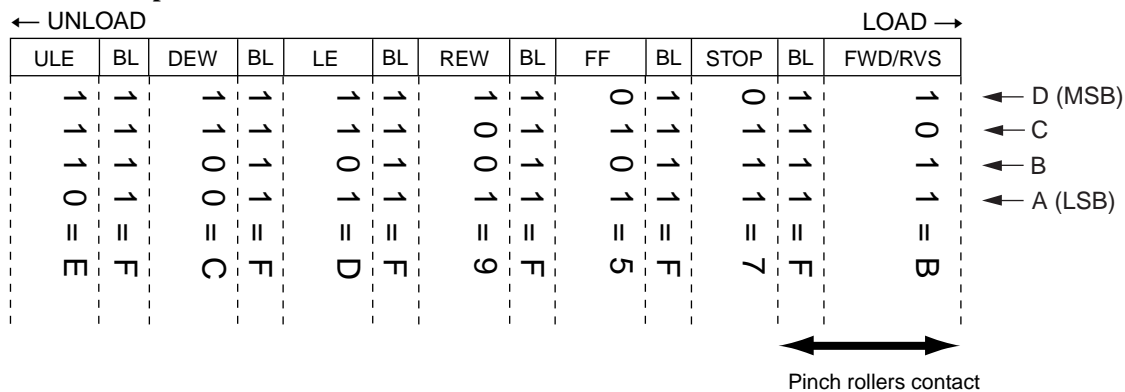
4. MSW Code

MSW when an alarm occurred: MSW (Mode Switch) information when an alarm occurred.

MSW when a transition starts: MSW information when the mechanism position starts to move (if L motor runs).

MSW of target destination: MSW information of target position if the mechanism position moves.

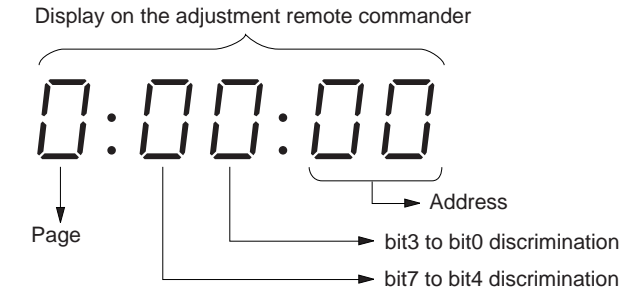
Mechanism position



Mechanism position	MSW code	Description
ULE	E	Unload end position. The mechanism stops at this position when it ejects a cassette. It waits for cassette insertion. The guide starts to expand as it advances to the load position.
BL	F	Blank code. It is provided between code and code. The mechanism does not stop at this code (excluding Load/Unload).
DEW	C	Code during loading.
LE	D	Load end position of tape guide.
REW	9	Position of REW operation. The pinch rollers are released.
FF	5	Position of FF operation. The pinch rollers are released.
STOP	7	Stop position. The pinch rollers are released, the tension regulator returns, and the brake is applied to both reels.
FWD/RVS	B	PB, REC, CUE, REVIEW, and PAUSE positions. The mechanism operates at this position in the mode where normal screen appears with the pinch rollers in contact state and the tension regulator turned on.
NULL	0	Code not existing in MD. Default value.

5. Bit Value Discrimination

Bit values must be discriminated using the display data of the adjustment remote commander for the following items. Us the table below to discriminate if the bit value is “1” or “0”.



(Example) If the remote commander display is “8E”, bit value from bit 7 to bit 4 can be discriminated from the column ㉠, and those from bit 3 to bit 0 from column ㉡.

Display on the adjustment remote commander	Bit values			
	bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
㉠ 8	1	0	0	0
9	1	0	0	1
A (H)	1	0	1	0
B (h)	1	0	1	1
C (L)	1	1	0	0
D (d)	1	1	0	1
㉡ E (E)	1	1	1	0
F (F)	1	1	1	1

6. Record of Use Check

Page E	Address D0 to E3
--------	------------------

Address	Function		Remark
D0	OPERATION 1	Lower two digits	The cumulative total hours of operating time is displayed.
D1		Higher two digits	
D2	DRUM RUN 1	Lower two digits	The cumulative total hours of drum rotation with tape threaded is displayed.
D3		Higher two digits	
D4	TAPE RUN 1	Lower two digits	The cumulative total hours of tape running time is displayed.
D5		Higher two digits	
D6	THREADING 1	Lower two digits	The cumulative number of tape unthreading operations is displayed.
D7		Higher two digits	
D8	CHECK SUM 1	Lower two digits	
D9		Higher two digits	
DA	OPERATION 2	Lower two digits	The cumulative total hours of operating time is displayed.
DB		Higher two digits	
DC	DRUM RUN 2	Lower two digits	The cumulative total hours of drum rotation with tape threaded is displayed.
DD		Higher two digits	
DE	TAPE RUN 2	Lower two digits	The cumulative total hours of tape running time is displayed.
DF		Higher two digits	
E0	THREADING 2	Lower two digits	The cumulative number of tape unthreading operations is displayed.
E1		Higher two digits	
E2	CHECK SUM 2	Lower two digits	
E3		Higher two digits	

Using method:

- 1) The record of use data is displayed at page: E, addresses: D0 to E3.

Note: When the drum was replaced, initialize the drum rotation counted time.

Initializing method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: E, address: D0, set data: 00, and press the PAUSE button.
- 3) Select address: D1 and E3 and set data "00" into them in the same way as in address: D0.
- 4) Select page: 0, address: 01, and set data: 00.

5-3. VIDEO SECTION ADJUSTMENTS

When performing adjustments, refer to the layout diagrams for adjustment related parts on page 5-60, 61.

3-1. PREPARATIONS BEFORE ADJUSTMENT

3-1-1. Equipment Used

- 1) TV monitor
- 2) Oscilloscope with 2-phenomenon, 30 MHz band, and delay mode (Unless specified otherwise, use a 10 : 1 probe)
- 3) Frequency counter
- 4) Digital voltmeter
- 5) Audio generator
- 6) Audio level meter
- 7) Audio noise meter
- 8) Audio distortion meter
- 9) Audio attenuator
- 10) Pattern generator (NTSC/PAL)
- 11) Vectorscope (NTSC/PAL)
- 12) Alignment tape
 - SW/OL reference (XH2-3)
Parts code: 8-967-997-11
 - Audio operation check for NTSC (XH5-3)
Parts code: 8-967-997-51
 - System operation check for NTSC (XH5-5)
Parts code: 8-967-997-61
 - Audio operation check for PAL (XH5-3P)
Parts code: 8-967-997-55
 - System operation check for PAL (XH5-5P)
Parts code: 8-967-997-66
- 13) Adjusting remote control unit (J-6082-053-B)

3-1-2. Connection of Equipment

According to the specification for the input terminal (S VIDEO input or VIDEO input), connect measuring equipment as shown in Fig. 5-3-1, and make adjustment.

The input terminal is specified in () of the signal column.

Any input terminal can be used unless otherwise specified.

To switch between S VIDEO input, VIDEO input and DV input, use the INPUT SELECT switch.

Note 1: In adjustments specifying for the S VIDEO input to be used, using the VIDEO input would disable the product specifications of this unit from being satisfied. Always use the input signal specified.

Note 2: If adjustments are used with the VTR with the S video output terminal as the signal source, the performance of this unit may be affected by the VTR. Use a pattern generator with a Y/C separator terminal as much as possible.

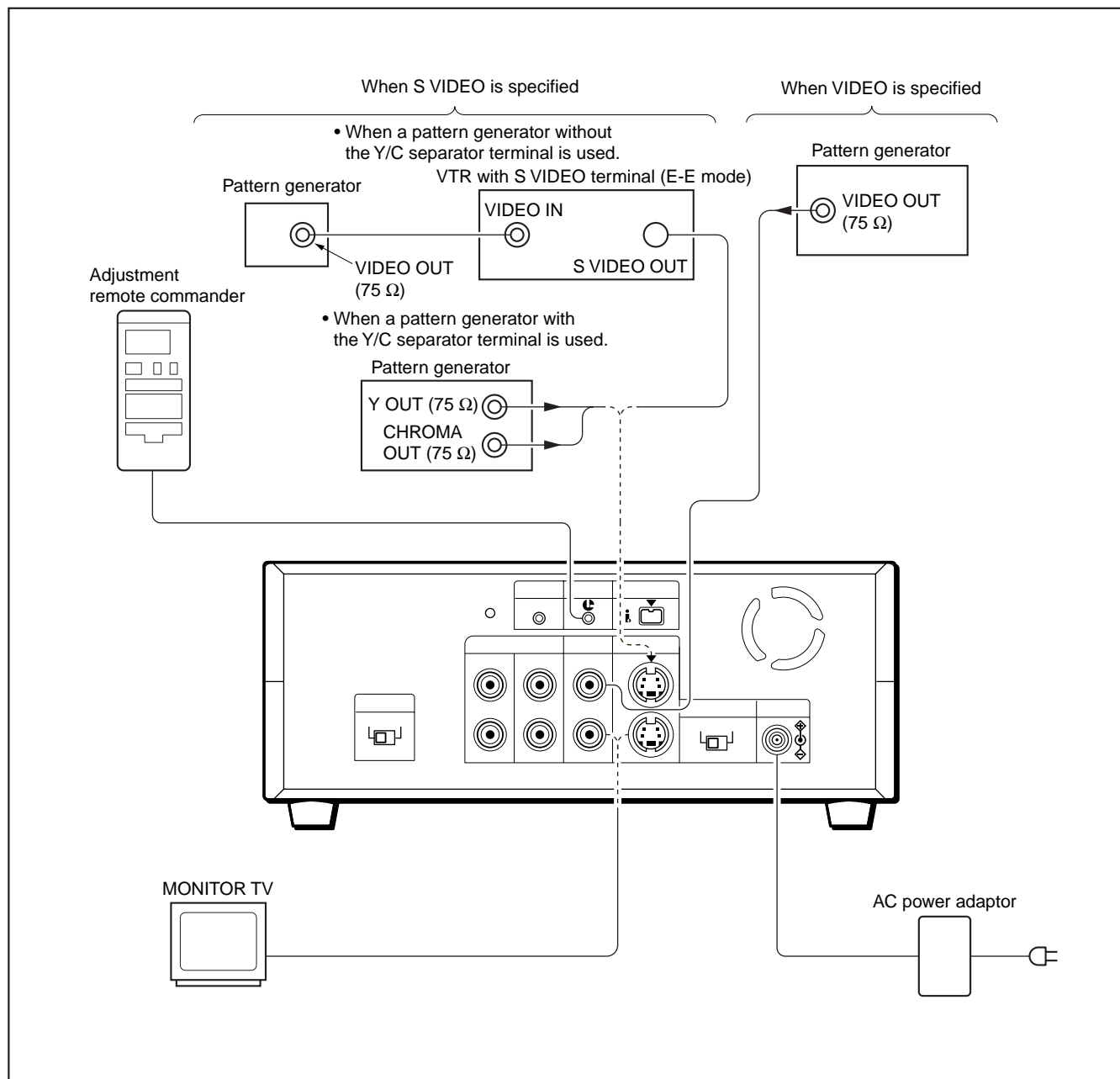


Fig. 5-3-1

3-1-3. Checking the Input Signals

Because the video signal obtained from the pattern generator is used as the adjustment signal for adjustments, the video output signal must satisfy the given specifications.

1. S VIDEO Input

Connect the oscilloscope to the Y signal terminal of the S VIDEO input terminal, and check that the sync signal of the Y signal is approximately $\langle 0.286 \rangle [0.30]$ V and that the amplitude of the video section is approximately $\langle 0.714 \rangle [0.70]$ V. (When a VTR with the S VIDEO output terminal is used, also check that the chroma signal and burst signal have not remained)

Connect the oscilloscope to the chroma signal terminal of the S VIDEO input terminal, and check that the burst signal amplitude of the chroma signal is approximately $\langle 0.286 \rangle [0.30]$ V and flat, and that the red signal amplitude of the chroma signal is approximately $\langle 0.66 \rangle [0.67]$ V. The Y and chroma signals used in the adjustment are shown in Fig. 5-3-2.

$\langle \quad \rangle$: NTSC mode

$[\quad]$: PAL mode

2. VIDEO Input

Connect the oscilloscope to the VIDEO input terminal, and check that the sync signal amplitude of the video signal is approximately $\langle 0.286 \rangle [0.30]$ V, the amplitude of the video section is approximately $\langle 0.714 \rangle [0.70]$ V, the amplitude of the burst signal is approximately $\langle 0.286 \rangle [0.30]$ V and flat, and that the red signal amplitude of the chroma signal is approximately $\langle 0.66 \rangle [0.67]$ V. The video signal (color bar) used for adjustments is shown in Fig. 5-3-3.

$\langle \quad \rangle$: NTSC mode

$[\quad]$: PAL mode

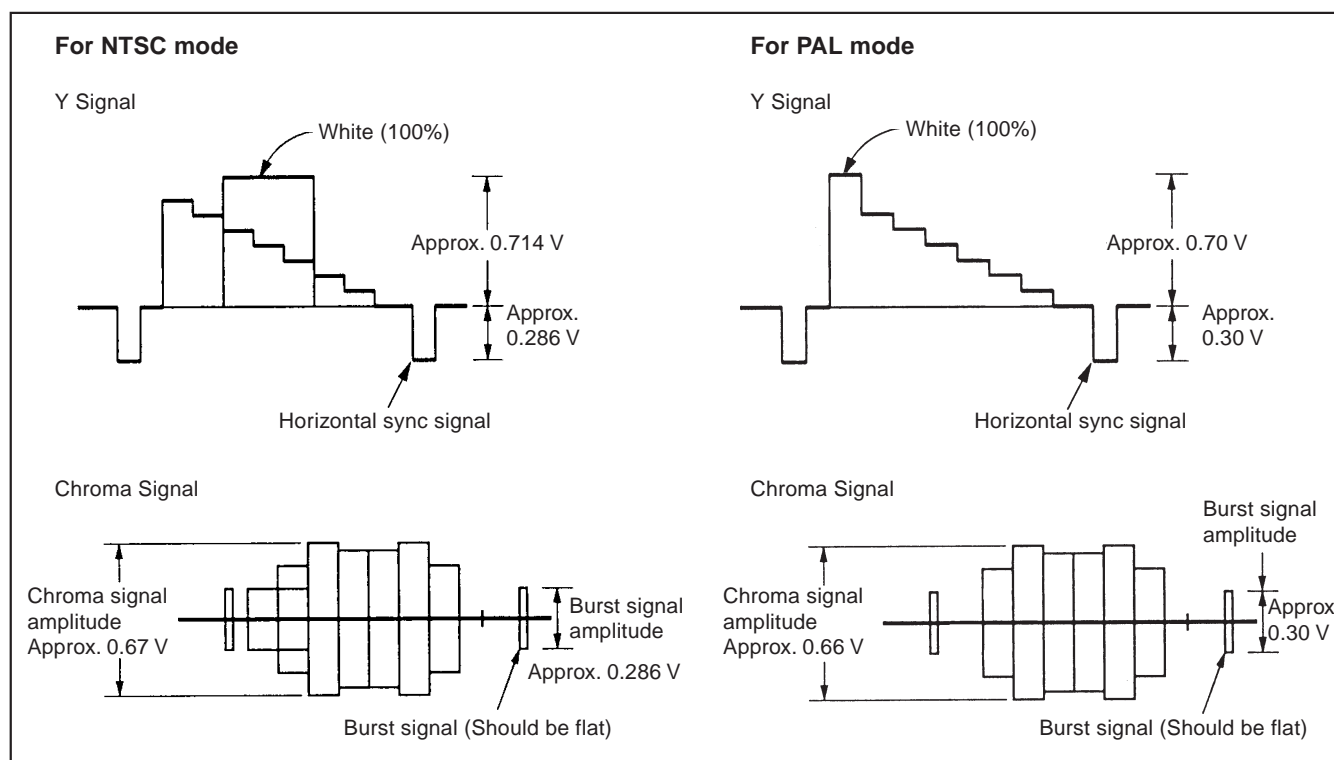


Fig. 5-3-2 Color Bar Signal of Pattern Generator

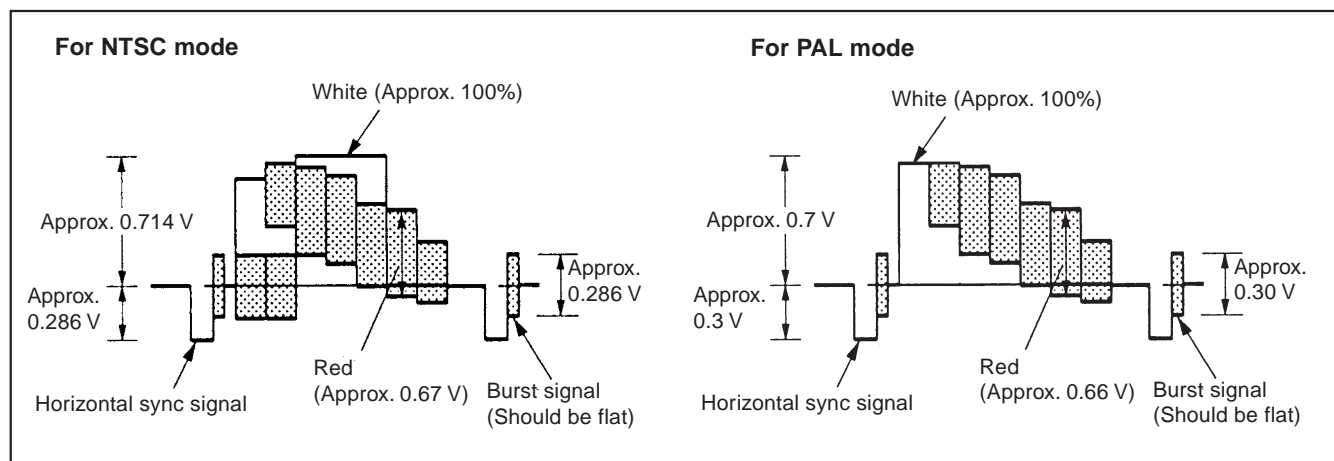


Fig. 5-3-3 Color Bar Signal of Pattern Generator

3-1-4. Adjustment Tapes

Use the alignment tapes shown in the following table.
Use tapes specified in the signal column of each adjustment.

Name	Use
SW/OL standard (XH2-3)	Switching position adjustment
Audio operation check (XH5-3 (NTSC), XH5-3P (PAL))	Audio system adjustment
System operation check (XH5-5 (NTSC), XH5-5P (PAL))	Operation check
BIST check (XH5-6 (NTSC), XH5-6P (PAL))	BIST check

Table 5-3-1

Fig. 5-3-4 shows the color bar signals recorded on the alignment tape for Audio Operation Check.

Note: Measure with video terminal (Terminated at 75 Ω)

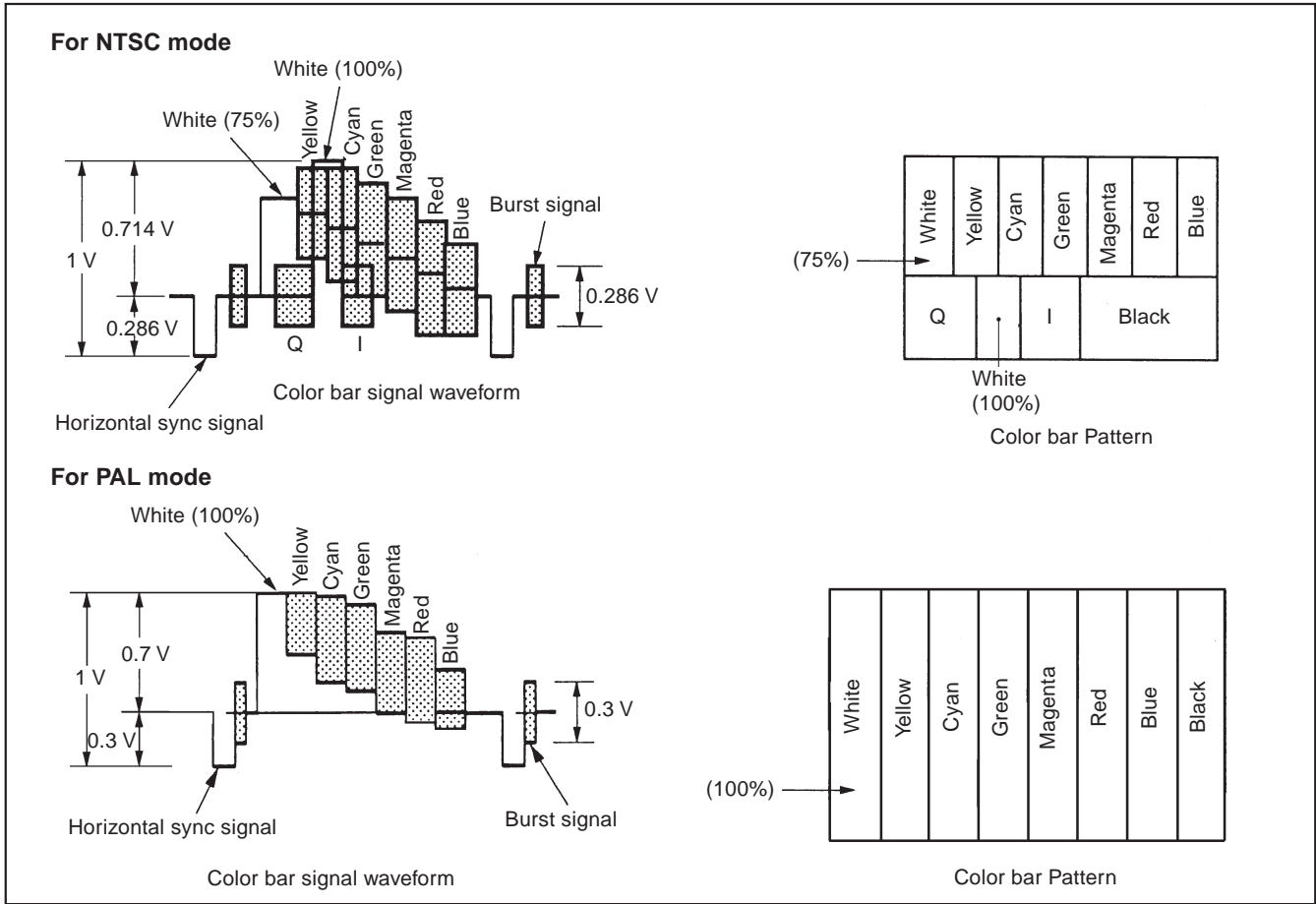


Fig. 5-3-4 Color Bar Signal of Alignment Tapes

3-1-5. Input/output Level and Impedance Inputs and outputs

Video input	Phono jack Input signal: 1 Vp-p (75 ohms unbalanced)
Video output	Phono jack Output signal: 1 Vp-p (75 ohms unbalanced)
S video input	Mini DIN 4-pin Luminance signal: 1 Vp-p (75 ohms unbalanced) Chrominance signal: 0.286 Vp-p (NTSC) 0.3 Vp-p (PAL) (75 ohms unbalanced)
S video output	Mini DIN 4-pin Luminance signal: 1 Vp-p (75 ohms unbalanced) Chrominance signal: 0.286 Vp-p (NTSC) 0.3 Vp-p (PAL) (75 ohms unbalanced)
Audio input	Phono jack (L, R) Input level: 2 Vrms (full bit) Input impedance: more than 47 kohms
Audio output	Phono jack (L, R) Output level: 2 Vrms (full bit) Output impedance: less than 10 kohms
Control S input	Minijack
LANC input/output	Stereo mini-mini jack
DV input/output	4-pin jack

3-2. SYSTEM CONTROL SYSTEM ADJUSTMENTS

1. Initializing the C, D, E Page Data

Note 1: If “Initializing the C, D, E Page Data” is performed, all data of the C page, D page and E page will be initialized.

Note 2: If the C, D, E page data has been initialized, “Modification of C, D, E page Data” and all adjustments need to be performed again.

Mode	E-E
Signal	Arbitrary
Adjustment Page	C
Adjustment Address	00 to DF
Adjustment Page	D
Adjustment Address	10 to 3F
Adjustment Page	E
Adjustment Address	10 to E8

2. Input of C Page Initial Data

Input method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 80, set data: 0C, and press the PAUSE button on the adjustment remote commander.
- 3) Select page: 3, address: 80, and check that the data change to “1C”.
- 4) Press the RESET switch at the rear panel of the set using a thin and long pin.
- 5) Modify the C page data. (Refer to C page table)

3. Input of D Page Initial Data

Input method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 80, set data: 0D, and press the PAUSE button on the adjustment remote commander.
- 3) Select page: 3, address: 80, and check that the data change to “1D”.
- 4) Press the RESET switch at the rear panel of the set using a thin and long pin.
- 5) Modify the D page data. (Refer to D page table)

4. Input of E Page Initial Data

Input method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 9, address: 00, set data: 2D, and press the PAUSE button on the adjustment remote commander.
- 3) Select page: 9, address: 01, set data: 2D, and press the PAUSE button.
- 4) Press the RESET switch at the rear panel of the set using a thin and long pin.
- 5) Modify the E page data. (Refer to E page table)

5. Modification of C, D, E, Page Data

If the C, D, E page data has been initialized, change the data of the “Fixed data-2” address shown in the following tables by manual input.

Modifying Method:

- 1) Before changing the data, select page: 0, address: 01, and set data: 01.
- 2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.

Note : If copy the data built in the different model, this set may not operate.

- 3) When changing the data, press the PAUSE button of the adjusting remote commander each time when setting new data to write the data in the non-volatile memory.
- 4) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.
- 5) After completing “Modification of C, D, E Page Data”, select page: 0, address: 01, and set data: 00. Also perform all adjustments.

6. C Page Table

Note: Fixed data-1: Initialized data. (Refer to “Input of C Page Initial Data”)

Fixed data-2: Modified data. (Refer to “Modification of C Page Data”)

Address	Initial data	Remark
10	EE	Switching position adj.
11	00	
12	EE	
13	00	
14, 15	Fixed data-1 (Initialized data)	
16	E0	Capstan FG adj.
17	Fixed data-1 (Initialized data)	
18	2A	CLK DELAY and AEQ adj.
19	2A	
1A	Fixed data-1 (Initialized data)	
1B	33	CLK DELAY and AEQ adj.
1C	33	
1D	Fixed data-1 (Initialized data)	
1E	25	RF-AGC adj.
1F	3E	PLL f ₀ adj.
20	3E	
21	DC	CLK DELAY and AEQ adj.
22	99	PLL f ₀ adj.
23, 24	Fixed data-1 (Initialized data)	
25	88	Playback Y level adj.
26	E3	Playback C level adj.
27	A1	
28 to 2B	Fixed data-1 (Initialized data)	
2C	08	Node unique ID No. input
2D	00	
2E	46	
2F	01	
30	02	
31	00	
32	00	
33	00	
34	Fixed data-2	
35		
36		
37		
38	00	Emergency memory
39	00	
3A	00	
3B	00	
3C	00	
3D	00	
3E	00	
3F	00	
40	00	
41	00	
42	00	
43	00	
44 to 46	Fixed data-1 (Initialized data)	
47	20	PLL f ₀ adj.
48 to 72	Fixed data-1 (Initialized data)	
73	03	CLK DELAY and AEQ adj.
74 to A9	Fixed data-1 (Initialized data)	

Address	Initial data	Remark
AA	03	HUE adj. (NTSC)
AB to B8	Fixed data-1 (Initialized data)	
B9	Fixed data-2	
BA to BD	Fixed data-1 (Initialized data)	
BE	03	HUE adj. (PAL)
BF to DF	Fixed data-1 (Initialized data)	

7. D Page Table

Note: Fixed data-1: Initialized data. (Refer to “Input of D Page Initial Data”)
Fixed data-2: Modified data. (Refer to “Modification of D Page Data”)

Address	Initial data	Remark
10 to 12	Fixed data-1 (Initialized data)	
13	Fixed data-2	
14 to 16	Fixed data-1 (Initialized data)	
17	Fixed data-2	
18		
19		
1A	Fixed data-1 (Initialized data)	
1B	Fixed data-2	
1C		
1D, 1E	Fixed data-1 (Initialized data)	
1F	Fixed data-2	
20, 21	Fixed data-1 (Initialized data)	
22	Fixed data-2	
23		
24 to 2C	Fixed data-1 (Initialized data)	
2D	Fixed data-2	
2E to 35	Fixed data-1 (Initialized data)	
36	Fixed data-2	
37		
38 to 3D	Fixed data-1 (Initialized data)	
3E	Fixed data-2	
3F		

8. E Page Table

Note: Fixed data-1: Initialized data. (Refer to “Input of E Page Initial Data”)
Fixed data-2: Modified data. (Refer to “Modification of E Page Data”)

Address	Initial data	Remark
10	00	Test mode
11, 12	Fixed data-1 (Initialized data)	
13	Fixed data-2	
14 to 6D	Fixed data-1 (Initialized data)	
6E	Fixed data-2	
6F		
70 to CF	Fixed data-1 (Initialized data)	
D0	00	Record of use
D1	00	
D2	00	
D3	00	
D4	00	
D5	00	
D6	00	
D7	00	
D8	00	
D9	00	
DA	00	
DB	00	
DC	00	
DD	00	
DE	00	
DF	00	
E0	00	
E1	00	
E2	00	
E3	00	
E4	Fixed data-1 (Initialized data)	
E5	Fixed data-2	
E6 to E8	Fixed data-1 (Initialized data)	

9. Node Unique ID No. Input

Note 1: Perform “2-2. Input of Serial No.” if the data on page C has been cleared and the node unique ID No. is not found.

9-1. Input of Company ID

Write the company ID to the EEPROM (nonvolatile memory).

Page	C
Address	2C, 2D, 2E, 2F, 30

Input method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Enter the following data.

Note 2: Each time the data is set, press the PAUSE button on the adjusting remote commander.

Address	Data
2C	08
2D	00
2E	46
2F	01
30	02

- 3) Select page: 0, address: 01, and set data: 00.

9-2. Input of Serial No.

Write the serial No. and model code to the EEPROM (nonvolatile memory).

In writing the serial No., a decimal number should be converted into a hexadecimal number.

Page	C
Address	31, 32, 33

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Read the serial No. from the model name label, and it is assumed to be D_1 .
Example: If serial No. is “77881”,
 $D_1 = 77881$
- 3) From Table 5-3-2, obtain D_2 and H_1 that correspond to D_1 .
Example: If $D_1 = 77881$,
 $D_2 = D_1 - 65536 = 12345$
 $H_1 = 5A$

D_1 (decimal)	D_2 (decimal) (Service model code)	H_1 (hexadecimal)
00001 to 65535	D_1	5B
65536 to 131071	$D_1 - 65536$	5B
131072 to 196607	$D_1 - 131072$	5B

Table 5-3-2

- 4) Enter H_1 to address: 31 on page: C.
Example: If $H_1 = 5A$,
select page: C, address: 31, and set data: 5A, then press the PAUSE button.
- 5) From Table 5-3-3, obtain the maximum decimal number less than D_2 , and it is assumed to be D_3 .
Example: If $D_2 = 12345$.
 $D_3 = 12288$
- 6) From Table 5-3-3, obtain a hexadecimal number that corresponds to D_3 , and it is assumed to be H_3 .
Example: If $D_3 = 12288$,
 $H_3 = 3000$
- 7) Calculate D_4 using following equations (decimal calculation). ($0 \leq D_4 \leq 225$)
 $D_4 = D_2 - D_3$
Example: If $D_2 = 12345$ and $D_3 = 12288$,
 $D_4 = 12345 - 12288 = 57$
- 8) Convert D_4 into a hexadecimal number to obtain H_4 . (See Table 5-2-2 “Hexadecimal - decimal conversion table” in 5-2. Service Mode)
Example: If $D_4 = 57$,
 $H_4 = 39$
- 9) Enter higher two digits of H_3 to address: 32 on page: C.
Example: If $H_3 = 3000$,
select page: C, address: 32, and set data: 30, then press the PAUSE button.
- 10) Enter H_4 to address: 33 on page: C.
Example: If $H_4 = 39$,
select page: C, address: 33, and set data: 39, then press the PAUSE button.
- 11) Select page: 0, address: 01, and set data: 00.

D ₃	H ₃	D ₃	H ₃	D ₃	H ₃	D ₃	H ₃	D ₃	H ₃	D ₃	H ₃	D ₃	H ₃	D ₃	H ₃
0	0000	8192	2000	16384	4000	24576	6000	32768	8000	40960	A000	49152	C000	57344	E000
256	0100	8448	2100	16640	4100	24832	6100	33024	8100	41216	A100	49408	C100	57600	E100
512	0200	8704	2200	16896	4200	25088	6200	33280	8200	41472	A200	49664	C200	57856	E200
768	0300	8960	2300	17152	4300	25344	6300	33536	8300	41728	A300	49920	C300	58112	E300
1024	0400	9216	2400	17408	4400	25600	6400	33792	8400	41984	A400	50176	C400	58368	E400
1280	0500	9472	2500	17664	4500	25856	6500	34048	8500	42240	A500	50432	C500	58624	E500
1536	0600	9728	2600	17920	4600	26112	6600	34304	8600	42496	A600	50688	C600	58880	E600
1792	0700	9984	2700	18176	4700	26368	6700	34560	8700	42752	A700	50944	C700	59136	E700
2048	0800	10240	2800	18432	4800	26624	6800	34816	8800	43008	A800	51200	C800	59392	E800
2304	0900	10496	2900	18688	4900	26880	6900	35072	8900	43264	A900	51456	C900	59648	E900
2560	0A00	10752	2A00	18944	4A00	27136	6A00	35328	8A00	43520	AA00	51712	CA00	59904	EA00
2816	0B00	11008	2B00	19200	4B00	27392	6B00	35584	8B00	43776	AB00	51968	CB00	60160	EB00
3072	0C00	11264	2C00	19456	4C00	27648	6C00	35840	8C00	44032	AC00	52224	CC00	60416	EC00
3328	0D00	11520	2D00	19712	4D00	27904	6D00	36096	8D00	44288	AD00	52480	CD00	60672	ED00
3584	0E00	11776	2E00	19968	4E00	28160	6E00	36352	8E00	44544	AE00	52736	CE00	60928	EE00
3840	0F00	12032	2F00	20224	4F00	28416	6F00	36608	8F00	44800	AF00	52992	CF00	61184	EF00
4096	1000	12288	3000	20480	5000	28672	7000	36864	9000	45056	B000	53248	D000	61440	F000
4352	1100	12544	3100	20736	5100	28928	7100	37120	9100	45312	B100	53504	D100	61696	F100
4608	1200	12800	3200	20992	5200	29184	7200	37376	9200	45568	B200	53760	D200	61952	F200
4864	1300	13056	3300	21248	5300	29440	7300	37632	9300	45824	B300	54016	D300	62208	F300
5120	1400	13312	3400	21504	5400	29696	7400	37888	9400	46080	B400	54272	D400	62464	F400
5376	1500	13568	3500	21760	5500	29952	7500	38144	9500	46336	B500	54528	D500	62720	F500
5632	1600	13824	3600	22016	5600	30208	7600	38400	9600	46592	B600	54784	D600	62976	F600
5888	1700	14080	3700	22272	5700	30464	7700	38656	9700	46848	B700	55040	D700	63232	F700
6144	1800	14336	3800	22528	5800	30720	7800	38912	9800	47104	B800	55296	D800	63488	F800
6400	1900	14592	3900	22784	5900	30976	7900	39168	9900	47360	B900	55552	D900	63744	F900
6656	1A00	14848	3A00	23040	5A00	31232	7A00	39424	9A00	47616	BA00	55808	DA00	64000	FA00
6912	1B00	15104	3B00	23296	5B00	31488	7B00	39680	9B00	47872	BB00	56064	DB00	64256	FB00
7168	1C00	15360	3C00	23552	5C00	31744	7C00	39936	9C00	48128	BC00	56320	DC00	64512	FC00
7424	1D00	15616	3D00	23808	5D00	32000	7D00	40192	9D00	48384	BD00	56576	DD00	64768	FD00
7680	1E00	15872	3E00	24064	5E00	32256	7E00	40448	9E00	48640	BE00	56832	DE00	65024	FE00
7936	1F00	16128	3F00	24320	5F00	32512	7F00	40704	9F00	48896	BF00	57088	DF00	65280	FF00

Note: D₃: Decimal
H₃: Hexadecimal

Table 5-3-3

3-3. SERVO AND RF SYSTEM ADJUSTMENTS

1. Capstan FG Adjustment (HD-024 Board)

Mode	E-E
Signal	No signal
Measurement Point	Displayed data of page: 3, address: 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	16
Specified Value	“ 00 ”

Adjusting method:

- 1) Close the cassette compartment without tape.
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Select page: 3, address: 01, set data: 1B, and press the PAUSE button of adjustment remote commander.
- 4) Select page: 3, address: 02, and check that the data change to “ 1B ” → “ 2B ” → “ 00 ”.
- 5) Select page: 3, address: 03, and check data: “ 00 ”.

Note: If page: 3, address: 03 is “ 01 ”, there are errors.

- 6) Set page: 0, address: 01, and set data: 00.

2. PLL f₀ Pre-adjustment (RP-234 Board)

Mode	E-E
Signal	No signal
Measurement Point	Displayed data of page: 3, address: 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	1F, 20, 22, 47
Specified Value	“ 00 ”

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 01, set data: 30, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 3, address: 02, and check that the data changes to “ 00 ”.
- 4) Select page: 3, address: 03, and check that the data is “ 00 ”.
- 5) Select page: 0, address: 01, and set data: 00.

3. Switching Position Adjustment (HD-024 Board)

Mode	Playback
Signal	Alignment tape: SW/OL standard (XH2-3)
Measurement Point	Displayed data of page: 3, address: 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	10, 11, 12, 13
Specified Value	“ 00 ”

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 01, set data: 0D, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 3, address: 02, and check that the data changes to “ 00 ”.
- 4) Select page: 3, address: 03, and check that the data is “ 00 ”.
- 5) Select page: 0, address: 01, and set data: 00.

4. RF-AGC Adjustment (RP-234 Board)

Mode	Recording and playback
Signal	Color bar
Measurement Point	Displayed data of page: 3, address: 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	1E
Specified Value	“ 00 ”

Adjusting method:

- 1) Record the color bar signal in the optional tape about 2 minutes.
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Select page: C, address: 54, set data: CC, and press the PAUSE button of the adjustment remote commander.
- 4) Select page: 3, address: 1D, set data: 21, and press the PAUSE button.
- 5) Play back the recorded section.
- 6) Select page: 3, address: 01, set data: 23, and press the PAUSE button.
- 7) Select page: 3, address: 02, and check that the data changes to “ 00 ”.
- 8) Select page: 3, address: 03, and check that the data is “ 00 ”.
- 9) Select page: 3, address: 1D, set data: 20, and press the PAUSE button.
- 10) Select page: C, address: 54, set data: 00, and press the PAUSE button.
- 11) Select page: 0, address: 01, and set data: 00.

5. CLK DELAY and AEQ Adjustment (RP-234 Board)

Mode	Recording and playback
Signal	Color bar
Measurement Point	Displayed data of page: 3, address: 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	18, 19, 1B, 1C, 21, 73
Specified Value	“00”

Adjusting method:

- 1) Record the color bar signal in the optional tape about 2 minutes.
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Select page: C, address: 54, set data: CC, and press the PAUSE button of the adjustment remote commander.
- 4) Select page: 3, address: 1D, set data: 21, and press the PAUSE button.
- 5) Play back the recorded section.
- 6) Select page: 3, address: 01, set data: 07, and press the PAUSE button.
- 7) Select page: 3, address: 02, and check that the data changes to “00”.
- 8) Select page: 3, address: 03, and check that the data is “00”.
- 9) Select page: 3, address: 1D, set data: 20, and press the PAUSE button.
- 10) Select page: C, address: 54, set data: 00, and press the PAUSE button.
- 11) Select page: 0, address: 01, and set data: 00.

6. PLL f₀ Final Adjustment (RP-234 Board)

Mode	E-E
Signal	No signal
Measurement Point	Displayed data of page: 3, address: 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	1F, 20, 22, 47
Specified Value	“00”

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 01, set data: 30, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 3, address: 02, and check that the data changes to “00”.
- 4) Select page: 3, address: 03, and check that the data is “00”.
- 5) Select page: 0, address: 01, and set data: 00.

3-4. VIDEO SYSTEM ADJUSTMENTS

3-4-1. JC-20 Board Adjustment

1. VFD SPCK Adjustment (JC-20 Board)

Mode	E-E
Signal	No signal
Measurement Point	Pin ⑤ of IC3302 (CL3305)
Measuring Instrument	Frequency counter
Adjustment Element	CT3300
Specified Value	$f = 13500000 \pm 20 \text{ Hz}$

Adjusting method:

- 1) Set the VFD SPCK frequency (f) to the specified value using CT3300.

2. A/D Converter Reference Voltage Adjustment (1) (JC-20 Board)

Mode	E-E
Signal	Arbitrary
Measurement Point	Pin ⑤ of IC1105 (CL1170)
Measuring Instrument	Digital voltmeter
Adjustment Element	RV1100
Specified Value	$A = 2.83 \pm 0.01 \text{ Vdc}$

Adjusting method:

- 1) Set the VRT voltage (A) to the specified value using RV1100.

3. A/D Converter Reference Voltage Adjustment (2) (JC-20 Board)

Mode	E-E
Signal	Arbitrary
Measurement Point	Pin ③ of IC1105 (CL1169)
Measuring Instrument	Digital voltmeter
Adjustment Element	RV1101
Specified Value	$A = 0.96 \pm 0.01 \text{ Vdc}$

Adjusting method:

- 1) Set the VBT voltage (A) to the specified value using RV1101.

4. Y Signal Clamp Reference Voltage Adjustment (JC-20 Board)

Mode	E-E
Signal	Color bar
Measuring Point	Pin ⑧ of IC1102 (CL1161)
Measuring Instrument	Digital voltmeter
Adjustment Element	RV1103
Specified Value	$A = 1.150 \pm 0.005$ Vdc

Connection: Connect a jumper wire between Pin ⑥ of IC1101 (CL1145 or Q1116 collector) and GND.

Adjusting method:

- 1) Set the Y signal clamp reference voltage (A) to the specified value using RV1103.

5. CR Signal Clamp Reference Voltage Adjustment (JC-20 Board)

Mode	E-E
Signal	Color bar
Measuring Point	Pin ⑧ of IC1103 (CL1160)
Measuring Instrument	Digital voltmeter
Adjustment Element	RV1102
Specified Value	$A = 1.915 \pm 0.005$ Vdc

Connection: Connect a jumper wire between Pin ⑥ of IC1101 (CL1145 or Q1116 collector) and GND.

Adjusting method:

- 1) Set the CR signal clamp reference voltage (A) to the specified value using RV1102.

6. CB Signal Clamp Reference Voltage Adjustment (JC-20 Board)

Mode	E-E
Signal	Color bar
Measuring Point	Pin ⑧ of IC1104 (CL1162)
Measuring Instrument	Digital voltmeter
Adjustment Element	RV1104
Specified Value	$A = 1.915 \pm 0.005$ Vdc

Connection: Connect a jumper wire between Pin ⑥ of IC1101 (CL1145 or Q1116 collector) and GND.

Adjusting method:

- 1) Set the CB signal clamp reference voltage (A) to the specified value using RV1104.

7. AFC Preliminary Adjustment (JC-20 Board)

Mode	Recording
Signal	Color bar
Measuring Point	Pin ⑨ of IC2204 (CL2214)
Measuring Instrument	Digital voltmeter
Adjustment Element	CT2200
Specified Value	$A = 1.9 \pm 0.5$ Vdc

Adjusting method:

- 1) Set the DC voltage (A) to the specified value using CT2200.

8. AFC Picture Frame Adjustment (JC-20 Board)

Mode	Recording
Signal	Color bar
Measuring Point	CH1: Pin ⑳ of IC1108 (CL1157) CH2: Pin ㉔ of IC2204 (CL2217)
Measuring Instrument	Oscilloscope
Adjustment Element	RV2201
Specified Value	$T = 110 \pm 10$ nsec

Adjusting method:

- 1) Set the time difference (T) between the center of COMP SYNC falling and AFH rising to the specified value using RV2201.

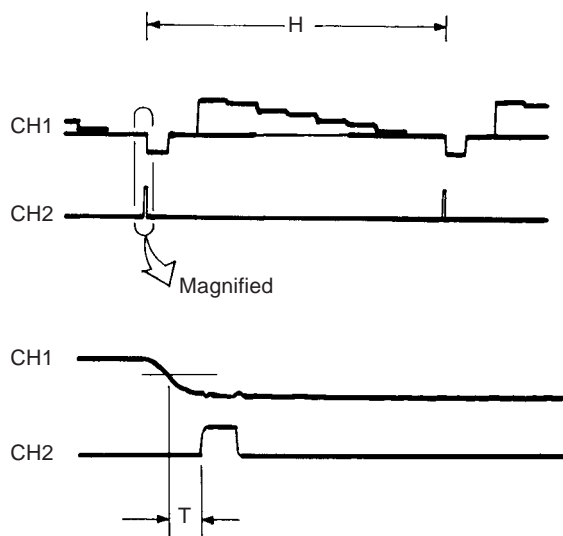


Fig. 5-3-5

9. AFC Adjustment (JC-20 Board)

Mode	Recording
Signal	Color bar
Measuring Point	Pin ⑨ of IC2204 (CL2214)
Measuring Instrument	Digital voltmeter
Adjustment Element	CT2200
Specified Value	$A = 1.90 \pm 0.05$ Vdc

Adjusting method:

- 1) Set the DC voltage (A) to the specified value using CT2200.

10. Playback Y level Adjustment (JC-20 Board)

Mode	E-E
Signal	No signal
Measuring Point	Pin ⑬ of CN1101 (CL1122)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	25
Specified Value	Y level: $A = 1.00 \pm 0.01$ Vp-p SYNC level: $B = 0.286 \pm 0.01$ Vp-p

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 0C, set data: 02, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: C, address: 25, change the data and adjust the Y signal level (A) to the specified value.
- 4) Press the PAUSE button of the adjustment remote commander.
- 5) Check that the SYNC signal level (B) is specified value.
- 6) Select page: 3, address: 0C, and set data: 00, and press the PAUSE button.
- 7) Select page: 0, address: 01, and set data: 00.

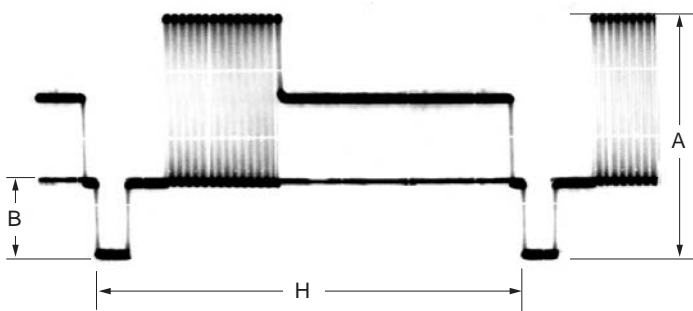


Fig. 5-3-6

11. Playback C level Adjustment (JC-20 Board)

Mode	E-E
Signal	No signal
Measuring Point	Pin ⑮ of CN1101 (CL1124)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	26, 27
Specified Value	CR level: $A = 0.714 \pm 0.01$ Vp-p CB level: $B = 0.714 \pm 0.01$ Vp-p

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 0C, set data: 02, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: C, address: 26, change the data and adjust the CR signal level (A) to the specified value.
- 4) Press the PAUSE button of the adjustment remote commander.
- 5) Select page: C, address: 27, change the data and adjust the CB signal level (B) to the specified value.
- 6) Press the PAUSE button of the adjustment remote commander.
- 7) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
- 8) Select page: 0, address: 01, and set data: 00.

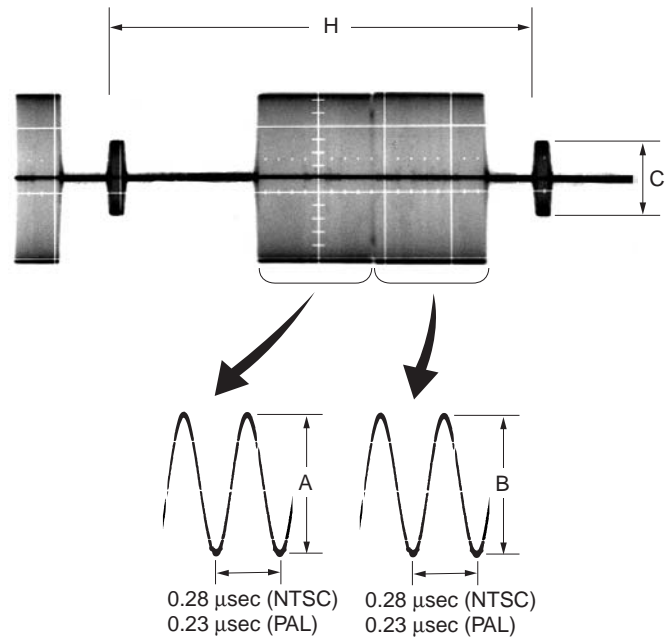


Fig. 5-3-7

3-4-2. VD-031 Board Adjustment

1. Decoder Free Run Adjustment (NTSC) (VD-031 Board)

Mode	E-E
Signal	No signal
Measuring Point	TP100 (CL111)
Measuring Instrument	Frequency counter
Adjustment Element	CT101
Specified Value	$f = 3579545 \pm 50 \text{ Hz}$

Connection: Connect a jumper wire between both ends of L106 (CL124 and CL125).

Switch setting:

NTSC/PAL switch.....NTSC

Adjusting method:

- 1) Set the decoder free run frequency (f) to the specified value using CT101.

2. Decoder Free Run Adjustment (PAL) (VD-031 Board)

Mode	E-E
Signal	No signal
Measuring Point	TP100 (CL111)
Measuring Instrument	Frequency counter
Adjustment Element	CT102
Specified Value	$f = 4433619 \pm 50 \text{ Hz}$

Connection: Connect a jumper wire between both ends of L106 (CL124 and CL125).

Switch setting:

NTSC/PAL switch.....PAL

Adjusting method:

- 1) Set the decoder free run frequency (f) to the specified value using CT102.

3. Y/C Separation Adjustment (VD-031 Board)

(1) Y Signal Level Adjustment (NTSC)

Mode	E-E
Signal	Color bar (NTSC) (VIDEO input)
Measuring Point	Pin ⑰ of CN003 (CL126)
Measuring Instrument	Oscilloscope
Adjustment Element	RV701
Specified Value	$A = 2.0 \pm 0.1 \text{ Vp-p}$

Switch setting:

INPUT SELECT switch.....VIDEO

NTSC/PAL switch.....NTSC

Adjusting method:

- 1) Set the Y signal level (A) to the specified value using RV701.

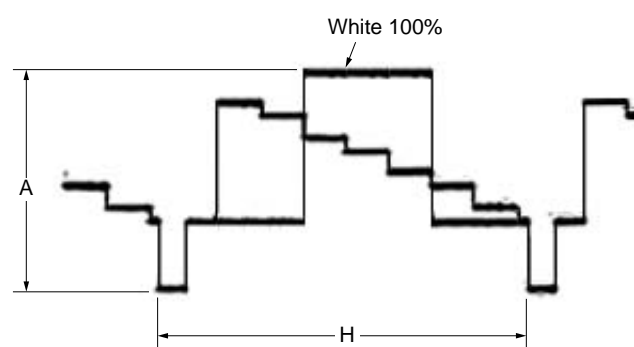


Fig. 5-3-8

(2) C Signal Level Adjustment (NTSC)

Mode	E-E
Signal	Color bar (NTSC) (VIDEO input)
Measuring Point	Pin ⑮ of CN003 (CL103)
Measuring Instrument	Oscilloscope
Adjustment Element	RV702
Specified Value	$A = 572 \pm 20 \text{ mVp-p}$

Switch setting:
INPUT SELECT switch.....VIDEO
NTSC/PAL switch.....NTSC

Adjusting method:
1) Set the burst level (A) to the specified value using RV702.

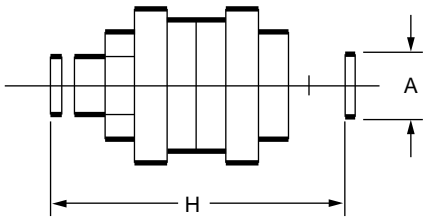


Fig. 5-3-9

(3) Y Signal Level Check (PAL)

Mode	E-E
Signal	Color bar (PAL) (VIDEO input)
Measuring Point	Pin ⑰ of CN003 (CL126)
Measuring Instrument	Oscilloscope
Specified Value	$A = 2.0 \pm 0.1 \text{ Vp-p}$

Switch setting:
INPUT SELECT switch.....VIDEO
NTSC/PAL switch.....PAL

Checking method:
1) Check the Y signal level (A) satisfies the specified value.

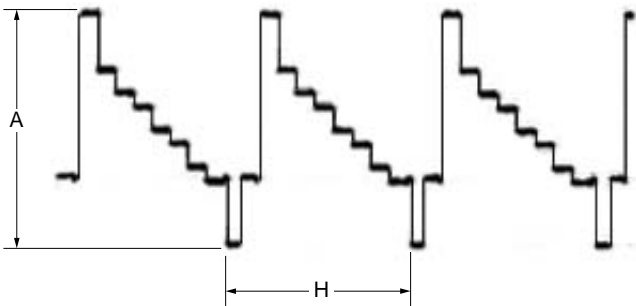


Fig. 5-3-10

(4) C Signal Level Check (PAL)

Mode	E-E
Signal	Color bar (PAL) (VIDEO input)
Measuring Point	Pin ⑮ of CN003 (CL103)
Measuring Instrument	Oscilloscope
Specified Value	A = 600 ± 50 mVp-p

Switch setting:
INPUT SELECT switch.....VIDEO
NTSC/PAL switch.....PAL

Checking method:
1) Check the burst level (A) satisfies the specified value.

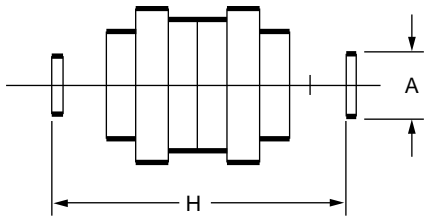


Fig. 5-3-11

4. Recording Signal Level Adjustment (VD-031 Board)

(1) REC Y Signal Level Adjustment (NTSC)

Mode	E-E
Signal	Color bar (NTSC) (S VIDEO input)
Measuring Point	Emitter of Q126 (CL113)
Measuring Instrument	Oscilloscope
Adjustment Element	RV104
Specified Value	A = 1.55 ± 0.05 Vp-p

Switch setting:
INPUT SELECT switch.....S VIDEO
NTSC/PAL switch.....NTSC

Adjusting method:
1) Set the Y signal level (A) to the specified value using RV104.

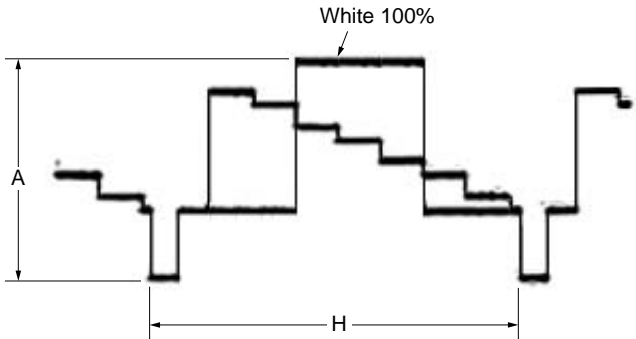


Fig. 5-3-12

(2) REC CR Signal Level Adjustment (NTSC)

Mode	E-E
Signal	Color bar (NTSC) (S VIDEO input)
Measuring Point	Emitter of Q118 (CL108)
Measuring Instrument	Oscilloscope
Adjustment Element	RV102
Specified Value	A = 1.25 ± 0.02 Vp-p

Switch setting:
INPUT SELECT switch.....S VIDEO
NTSC/PAL switch.....NTSC

Adjusting method:
1) Set the CR signal level (A) to the specified value using RV102.

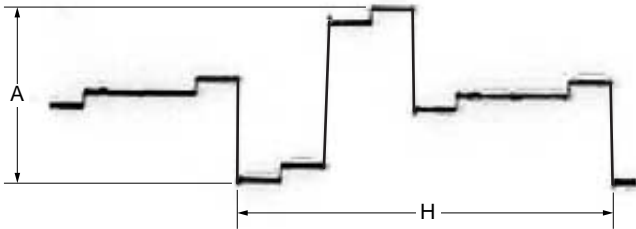


Fig. 5-3-13

(3) REC CB Signal Level Adjustment (NTSC)

Mode	E-E
Signal	Color bar (NTSC) (S VIDEO input)
Measuring Point	Emitter of Q127 (CL114)
Measuring Instrument	Oscilloscope
Adjustment Element	RV105
Specified Value	$A = 1.20 \pm 0.02 \text{ Vp-p}$

Switch setting:
INPUT SELECT switch.....S VIDEO
NTSC/PAL switch.....NTSC

Adjusting method:
1) Set the CB signal level (A) to the specified value using RV105.

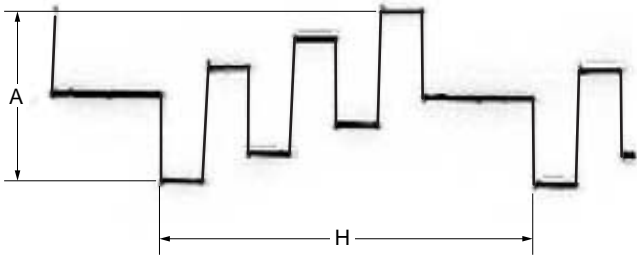


Fig. 5-3-14

(4) REC Y Signal Level Check (PAL)

Mode	E-E
Signal	Color bar (PAL) (S VIDEO input)
Measuring Point	Emitter of Q126 (CL113)
Measuring Instrument	Oscilloscope
Specified Value	$A = 1.55 \pm 0.05 \text{ Vp-p}$

Switch setting:
INPUT SELECT switch.....S VIDEO
NTSC/PAL switch.....PAL

Checking method:
1) Check the Y signal level (A) satisfies the specified value.

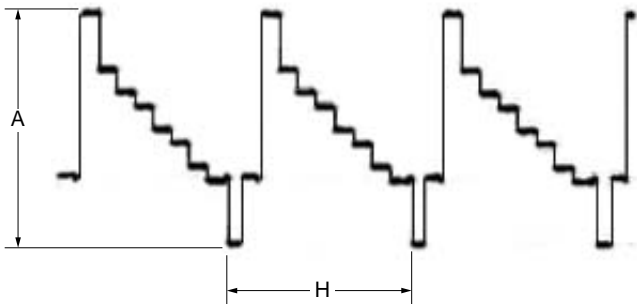


Fig. 5-3-15

(5) REC CR Signal Level Check (PAL)

Mode	E-E
Signal	Color bar (PAL) (S VIDEO input)
Measuring Point	Emitter of Q118 (CL108)
Measuring Instrument	Oscilloscope
Specified Value	$A = 1.25 \pm 0.02 \text{ Vp-p}$

Switch setting:
INPUT SELECT switch.....S VIDEO
NTSC/PAL switch.....PAL

Checking method:
1) Check the CR signal level (A) satisfies the specified value.

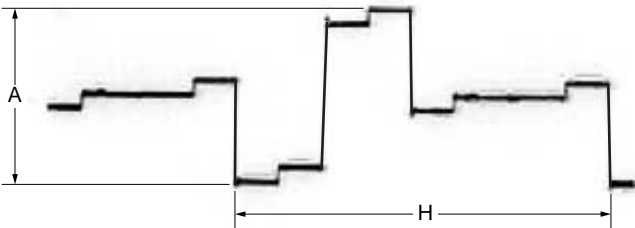


Fig. 5-3-16

(6) REC CB Signal Level Check (PAL)

Mode	E-E
Signal	Color bar (PAL) (S VIDEO input)
Measuring Point	Emitter of Q127 (CL114)
Measuring Instrument	Oscilloscope
Specified Value	$A = 1.20 \pm 0.02 \text{ Vp-p}$

Switch setting:
INPUT SELECT switch.....S VIDEO
NTSC/PAL switch.....PAL

Checking method:
1) Check the CB signal level (A) satisfies the specified value.

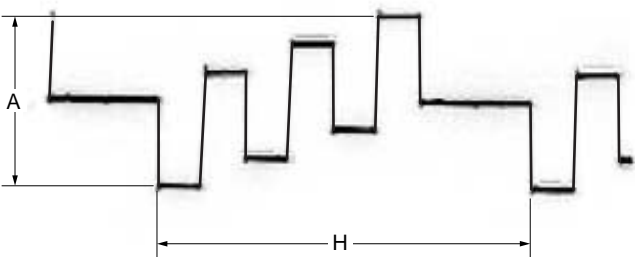


Fig. 5-3-17

3-4-3. General Adjustment

1. HUE Adjustment (NTSC)

Mode	E-E
Signal	Color bar (NTSC) (VIDEO input)
Measuring Point	VIDEO OUTPUT terminal (75 Ω terminated)
Measuring Instrument	Vectorscope
Adjustment Page	C
Adjustment Address	AA
Specified Value	Each luminance point is inside of the 田 mark on the vectorscope

Switch setting:

INPUT SELECT switch.....VIDEO
NTSC/PAL switch.....NTSC

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Adjust the burst luminance point to the 75% cursor position using the PHASE and GAIN knobs of vectorscope.
- 3) Select page: C, address: AA, change the data and adjust so that each luminance point is inside of the 田 mark on the vectorscope.
- 4) Press the PAUSE button of the adjustment remote commander.
- 5) Select page: 0, address: 01, and set data: 00.

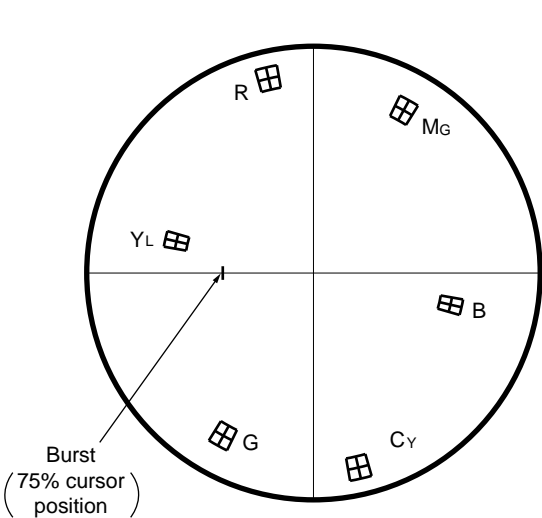


Fig. 5-3-18

2. HUE Adjustment (PAL)

Mode	E-E
Signal	Color bar (PAL) (VIDEO input)
Measuring Point	VIDEO OUTPUT terminal (75 Ω terminated)
Measuring Instrument	Vectorscope
Adjustment Page	C
Adjustment Address	BE
Specified Value	Each luminance point is inside of the 田 mark on the vectorscope

Switch setting:

INPUT SELECT switch.....VIDEO
NTSC/PAL switch.....PAL

Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Adjust the burst luminance point to the 75% cursor position using the PHASE and GAIN knobs of vectorscope.
- 3) Select page: C, address: BE, change the data and adjust so that each luminance point is inside of the 田 mark on the vectorscope.
- 4) Press the PAUSE button of the adjustment remote commander.
- 5) Select page: 0, address: 01, and set data: 00.

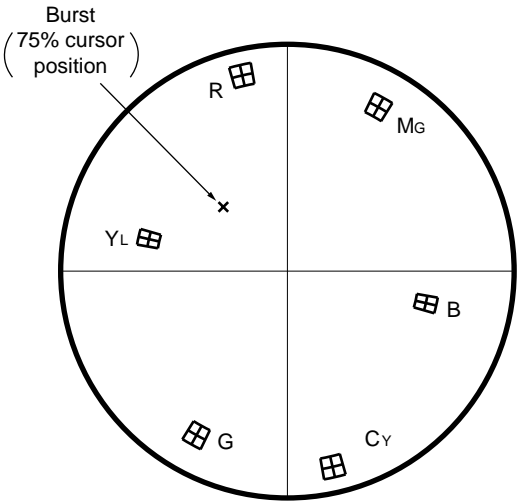


Fig. 5-3-19

3-5. AUDIO SYSTEM ADJUSTMENTS
Connection of Equipment

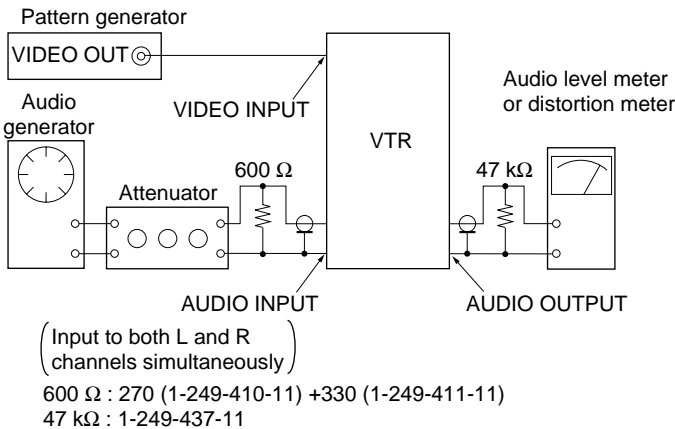


Fig. 5-3-20

1. Playing Level Check

Mode	PLAY
Signal	Alignment tape: For audio check (NTSC: XH5-3/PAL: XH5-3P)
Measurement Point	AUDIO OUTPUT terminal (L and R)
Measuring Instrument	Audio level meter, Oscilloscope
Specified Value	32 kHz mode section: 1 kHz signal must be outputted. 48 kHz mode section: 1 kHz signal level is +4 to +8 dBV. 44.1 kHz mode EMP ON section: 7.35 kHz signal level is -5 to -7 dB for 1 kHz signal level in 48 kHz mode. 44.1 kHz mode EMP OFF section: 7.35 kHz signal level is -1 to +1 dB for 1 kHz signal level in 48 kHz mode.

Note: 0 dBV = 1 Vrms

Checking method

- 1) Check that the play signal level satisfies the specified value.
- 2) Check with the oscilloscope that no clip is found in the output waveform.

2. E-E S/N Check

Mode	E-E
Signal	Audio: 1 kHz, +4 dBV signal no signal AUDIO INPUT terminal (L and R) Video: Color bar VIDEO INPUT terminal
Measurement Point	AUDIO OUTPUT terminal (L and R)
Measuring Instrument	Audio level meter Audio noise meter (with A-weight filter)
Specified Value	92 dB or more

Switch setting

INPUT SELECT switch..... VIDEO (except DV)

Menu setting (AUDIO SET menu)

AUDIO MODE.....FS48K

Checking method

- 1) Enter 1 kHz, +4 dBV signal to the AUDIO INPUT terminals (L and R).
- 2) Measure the output level of the AUDIO OUTPUT terminals (L and R), and assume them to be S_L (dBV) and S_R (dBV) respectively.
- 3) Place the AUDIO INPUT terminals (L and R) in the no-signal state.
- 4) Measure the noise level (A-weight filter ON) of the AUDIO OUTPUT terminals (L and R), and assume them to be N_L (dBV) and N_R (dBV) respectively.
- 5) Obtain a difference (dB) between S_L (dBV) and N_L (dBV) to check that it satisfies the specified value.
 S_L (dBV) - N_L (dBV) \geq 92 (dB)
- 6) Obtain a difference (dB) between S_R (dBV) and N_R (dBV) to check that it satisfies the specified value.
 S_R (dBV) - N_R (dBV) \geq 92 (dB)

3. E-E Distortion Check

Mode	E-E
Signal	Audio: 1 kHz, +4.0 dBV signal AUDIO INPUT terminal (L and R)
	Video: Color bar VIDEO INPUT terminal
Measurement Point	AUDIO OUTPUT terminal (L and R)
Measuring Instrument	Audio distortion meter
Specified Value	−80 dB or less

Switch setting

INPUT SELECT switch.....VIDEO (except DV)

Menu setting (AUDIO SET menu)

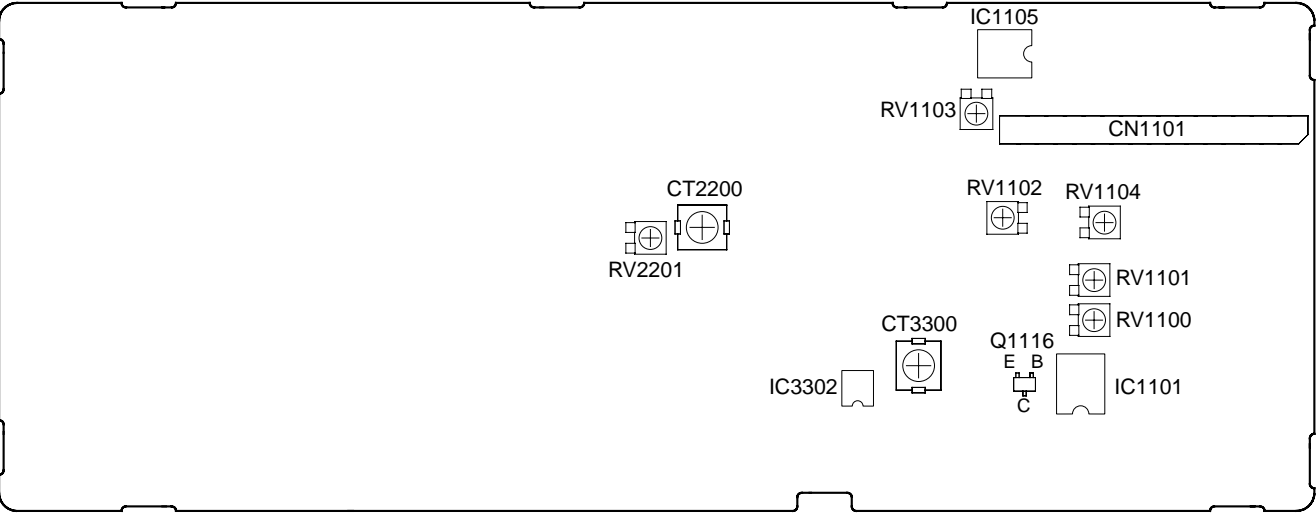
AUDIO MODE.....FS48K

Checking method

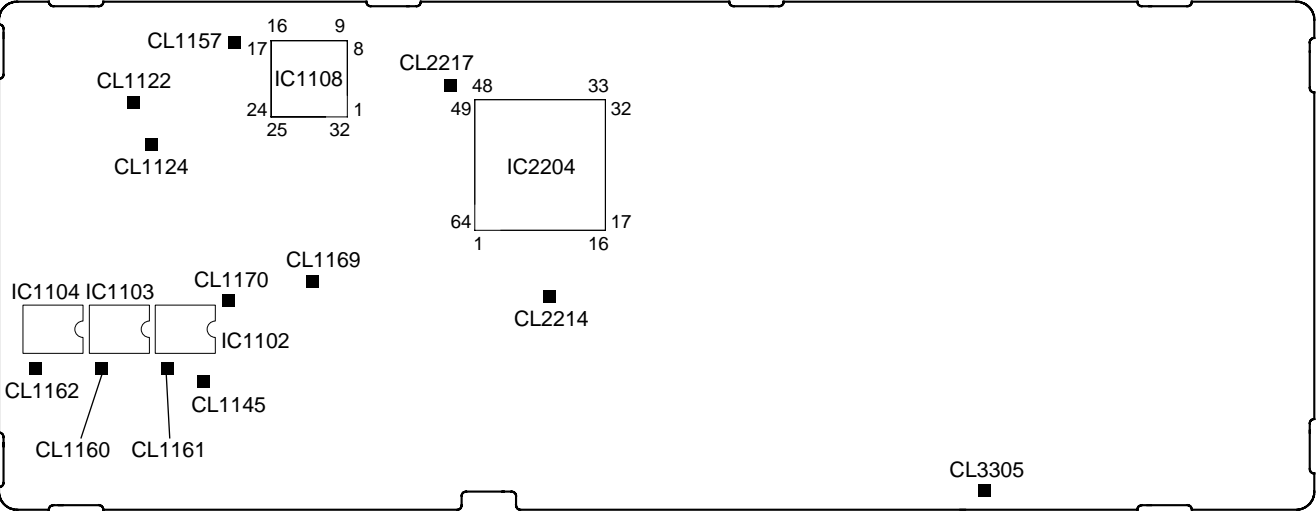
- 1) Enter 1 kHz, +4.0 dBV signal to the AUDIO INPUT terminals (L and R).
- 2) Measure fundamental wave eliminating distortion of the AUDIO OUTPUT terminals (L and R) to check that is satisfies the specified value.

3-6. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

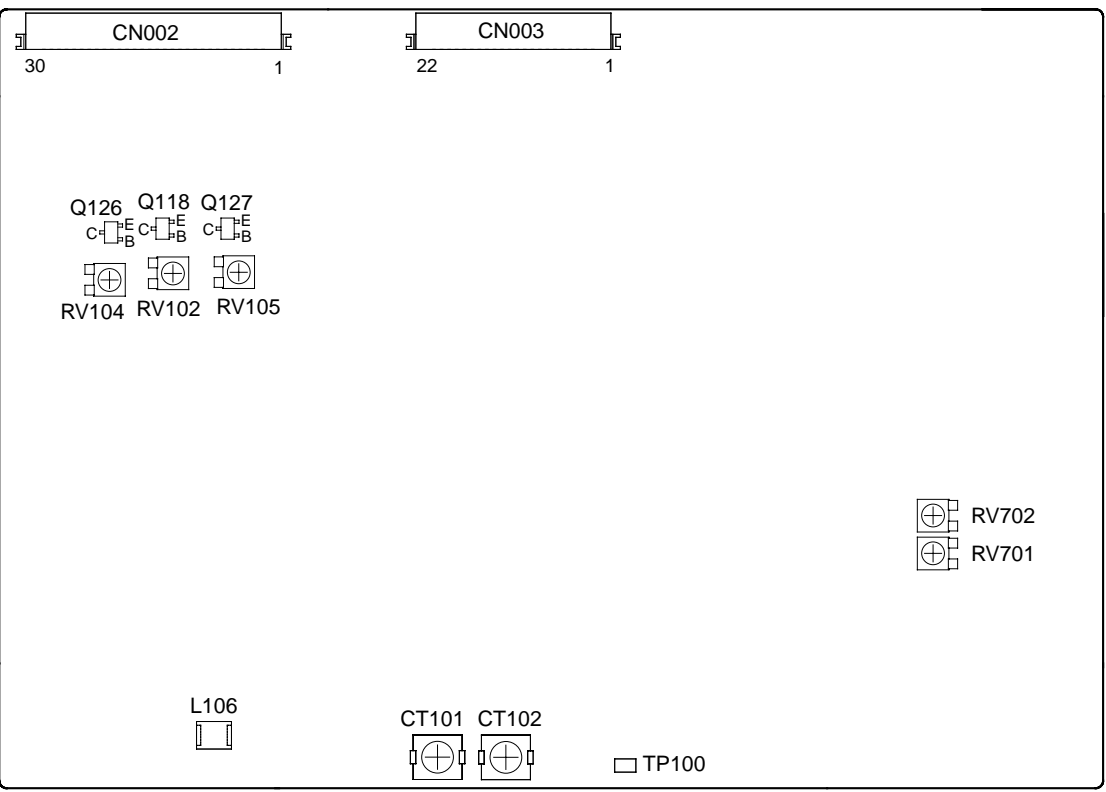
JC-20 BOARD (SIDE A)



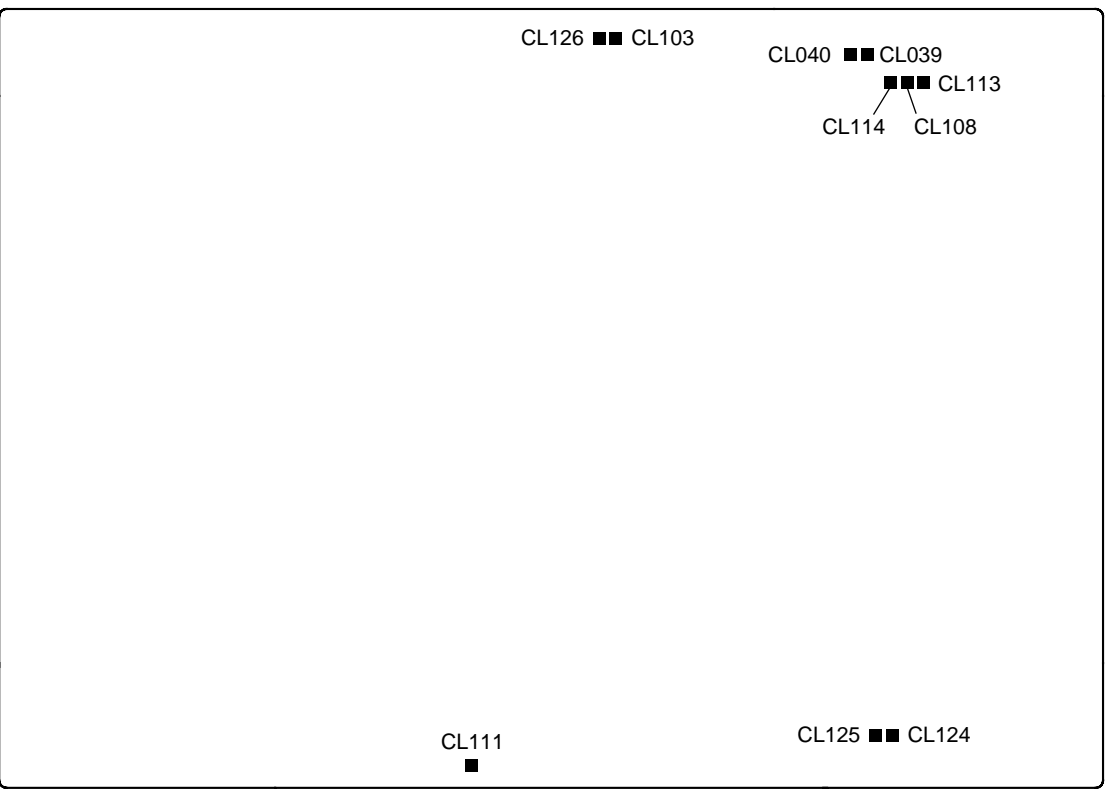
JC-20 BOARD (SIDE B)



VD-031 BOARD (SIDE A)



VD-031 BOARD (SIDE B)



SECTION 6

REPAIR PARTS LIST

6-1. EXPLODED VIEWS

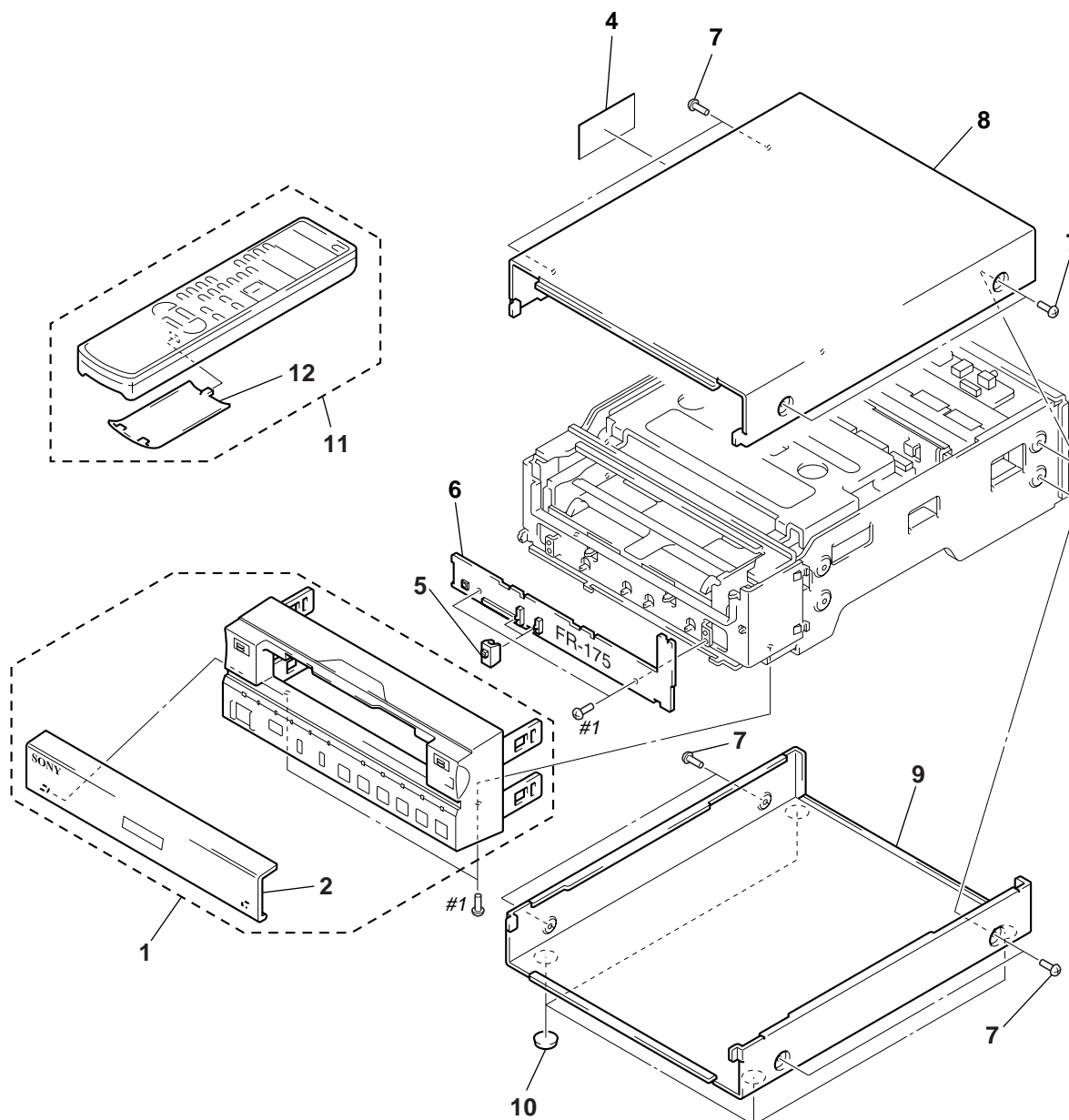
NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories are given in the last of the electrical parts list.

The components identified by mark Δ or dotted line with mark Δ are critical for safety.
Replace only with part number specified.

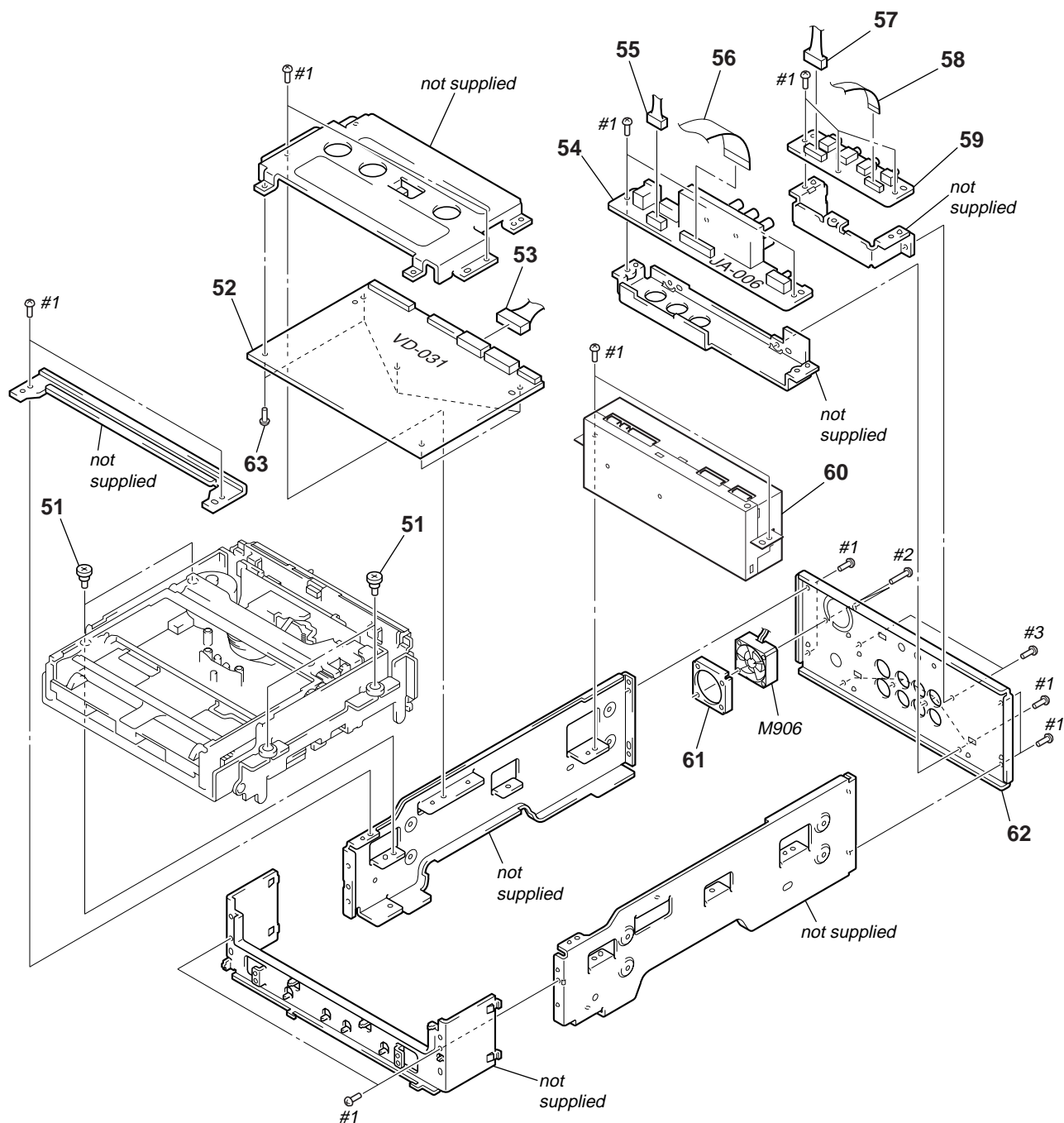
Les composants identifiés par une marque Δ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

6-1-1. OVERALL ASSEMBLY



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 1	X-3951-283-1	PANEL ASSY, FRONT		* 8	3-065-749-01	CASE, UPPER	
2	X-3951-284-1	DOOR ASSY, FRONT		* 9	3-065-749-11	CASE, UPPER	
* 4	3-065-626-01	LABEL, FCC/CAUTION		* 10	3-066-177-01	FOOT, RUBBER	
5	3-065-750-01	KNOB, SLIDE		11	1-476-403-11	REMOTE COMMANDER (RMT-DS11)	
6	A-7074-637-A	FR-175 BOARD, COMPLETE		12	3-708-923-01	COVER, BATTERY (for RMT-DS11)	
7	3-065-748-01	SCREW, FLAT HEAD					

6-1-2. CHASSIS ASSEMBLY-1

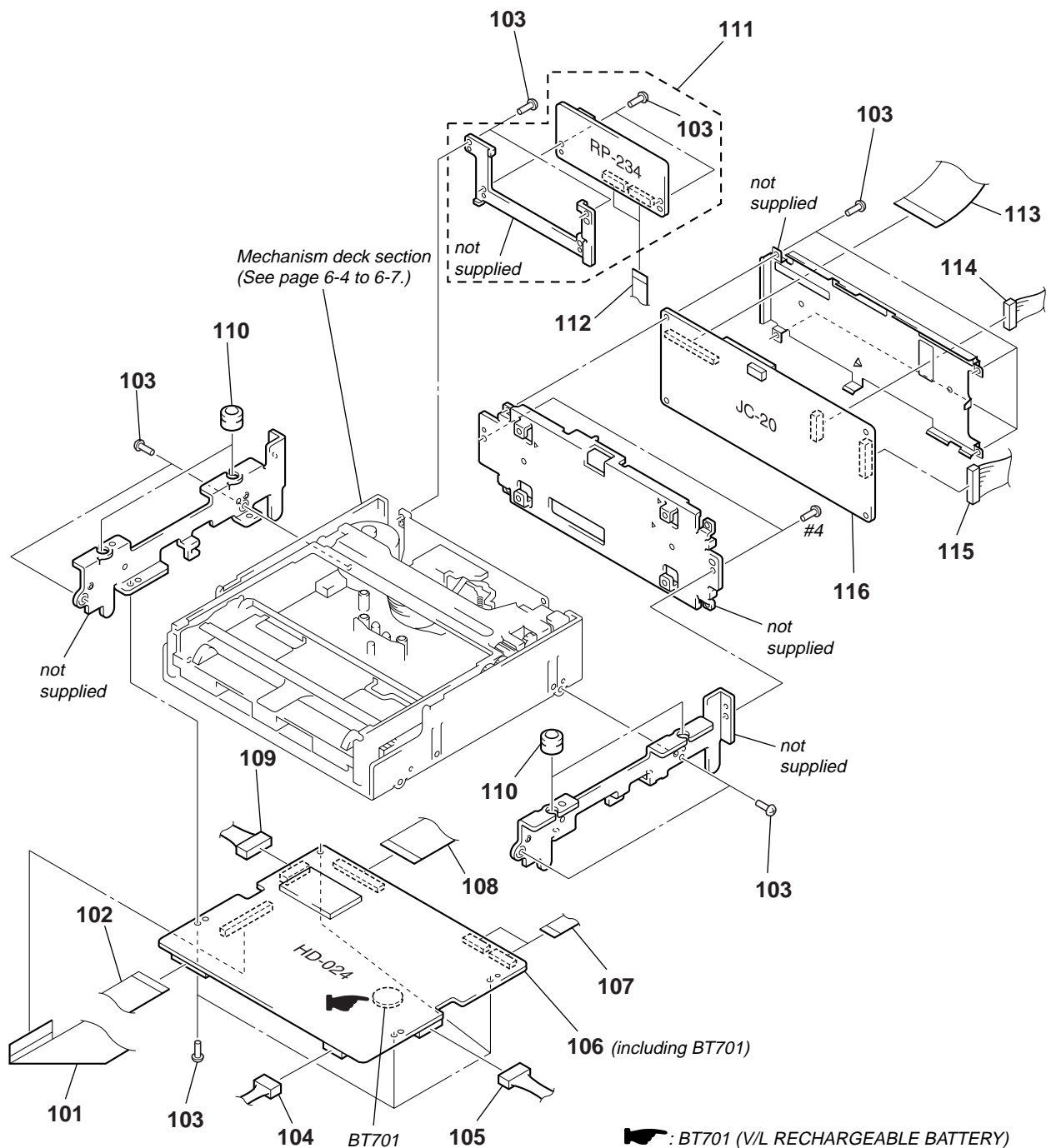



The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	3-974-010-01	SCREW (M3), STEP		58	1-757-434-11	CABLE, FLAT (FHJ-001)	
52	A-7074-640-A	VD-031 BOARD, COMPLETE		59	A-7074-639-A	JD-002 BOARD, COMPLETE	
53	1-960-998-11	HARNESS (VD-005)		Δ 60	1-476-405-11	CONVERTER UNIT, DC/DC (DC-1492)	
54	A-7074-638-A	JA-006 BOARD, COMPLETE		* 61	3-065-753-01	BRACKET, FAN	
55	1-960-999-11	HARNESS (JD-052)		* 62	3-065-755-01	PANEL, REAR	
56	1-757-435-11	CABLE, FLAT (FVJ-001)		63	2-641-447-21	SCREW (2.6X5), +STP	
57	1-960-995-11	HARNESS (JJ-056)		M906	1-763-633-11	FAN, DC	

6-1-3. CHASSIS ASSEMBLY-2

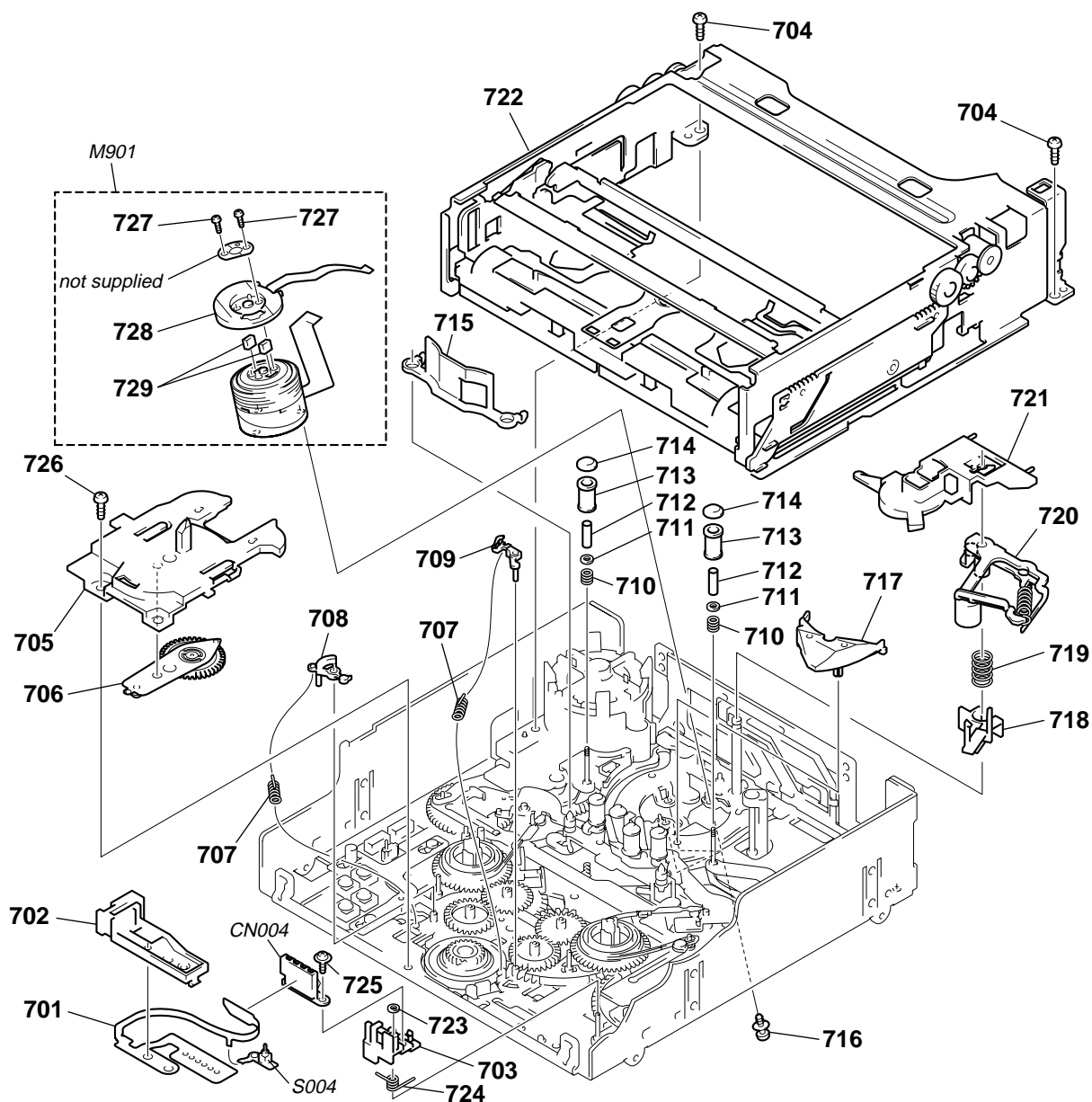


 : BT701 (V/L RECHARGEABLE BATTERY)
Board on the mount position. (See page 4-71.)

CAUTION
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

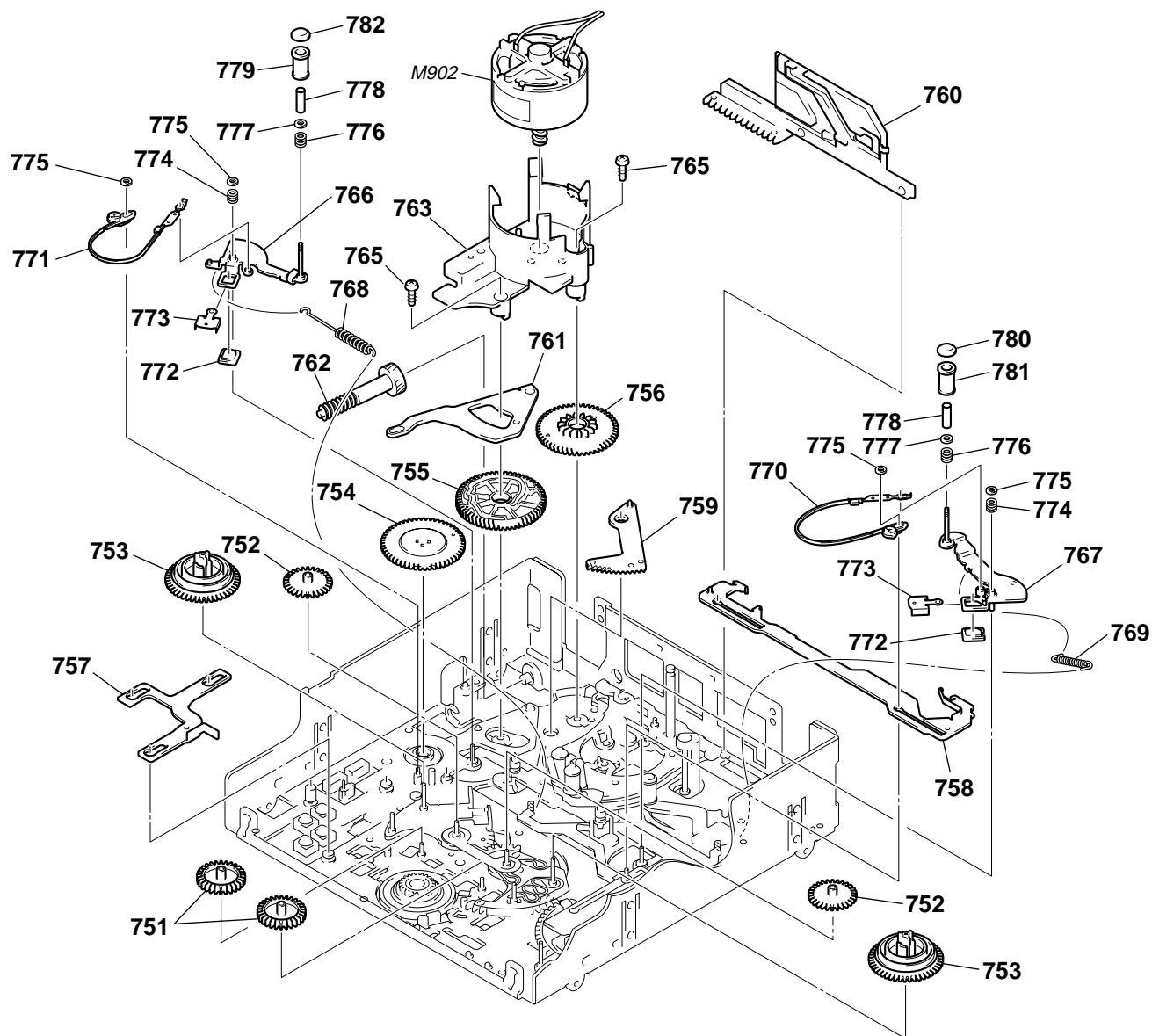
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	1-757-431-11	CABLE, FLAT (FJH-001)		110	3-974-011-01	RUBBER, VIBRATION PROOF	
102	1-757-433-11	CABLE, FLAT (FHF-001)		111	A-7067-275-A	RP-234 BOARD, COMPLETE	
103	3-732-817-01	SCREW (2X4.5), TAPPING		112	1-791-661-11	CABLE, FLEXIBLE FLAT (FRJ-1)	
104	1-960-994-11	HARNESS (HV-053)		113	1-757-432-11	CABLE, FLAT (FJV-001)	
105	1-960-991-11	HARNESS (HD-100)		114	1-960-997-11	HARNESS (JV-062)	
106	A-7074-622-A	HD-024 BOARD, COMPLETE (SERVICE)		115	1-960-996-11	HARNESS (JV-061)	
107	1-791-662-11	CABLE, FLEXIBLE FLAT (FMD-14)		116	A-7074-621-A	JC-20 BOARD, COMPLETE (SERVICE)	
108	1-791-660-11	CABLE, FLEXIBLE FLAT (FJC-1)		BT701	1-528-694-11	BATTERY, V/L RICHARGEABLE	
109	1-960-992-11	HARNESS (HD-101)					

6-1-4. MECHANISM DECK ASSEMBLY (DRUM ASSEMBLY)



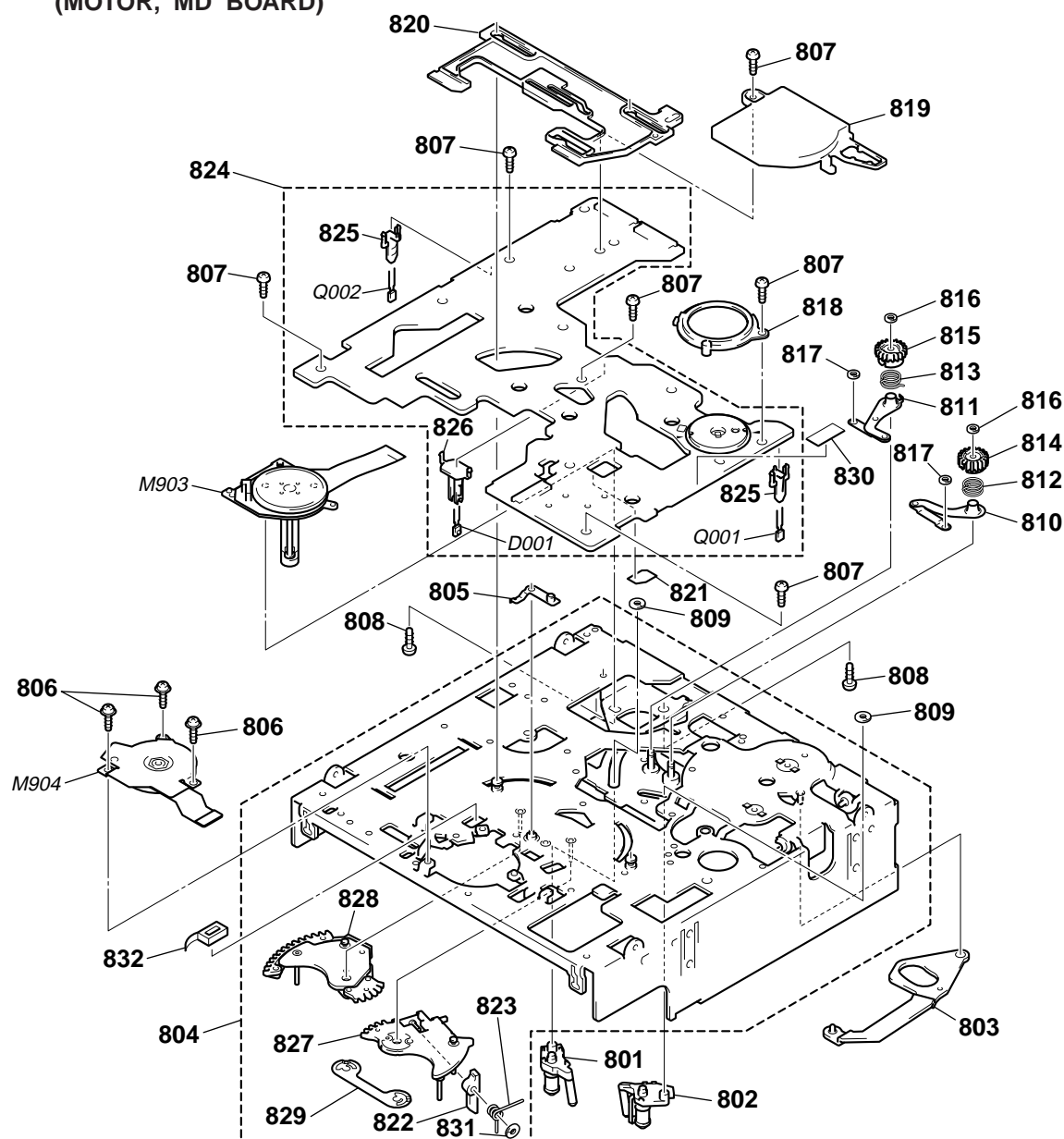
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
701	1-675-561-11	FP-104 FLEXIBLE BOARD		717	3-973-171-01	SUPPORT, TAPE	
* 702	3-057-351-01	GUIDE, MIC BASE		718	3-057-227-01	RETAINER, TAPE	
703	3-057-350-02	BASE, MIC		719	3-973-818-01	SPRING, COMPRESSION (TAPE RETAINER)	
704	3-732-817-01	SCREW (2X4.5), TAPPING		720	X-3949-915-1	ARM ASSY, PINCH	
705	3-057-319-01	RETAINER, PENDULUM		721	3-057-228-01	CAP, DRUM	
706	X-3949-922-1	ARM ASSY, PENDULUM		722	A-7094-602-B	COMPARTMENT BLOCK ASSY	
707	3-057-286-01	SPRING, EXTENSION (BRAKE)		723	3-726-829-01	WASHER, STOPPER	
708	3-057-280-01	ARM (S), BRAKE		724	3-057-353-01	SPRING, MIC BASE	
709	3-057-279-01	BRAKE (T), RATCHET		725	3-318-201-11	SCREW (B) (1.4X3), TAPPING	
710	3-057-232-01	SPRING, COMPRESSION (TG)		726	3-973-266-01	SCREW (M2X2.2 (MEK)), HEAD	
711	3-057-238-01	RING, TG		727	3-703-816-74	SCREW (M1.4X4.5)	
712	3-057-237-01	SLEEVE, TG		728	X-3944-897-1	FPC ASSY, MOTOR	
713	3-057-235-01	ROLLER, TG		729	1-770-363-11	CONNECTOR, ELASTIC	
714	3-057-234-01	FLANGE, TG UPPER		CN004	1-770-312-21	CONNECTOR 4P	
715	3-057-379-01	GUARD, GUIDE		M901	A-7048-947-A	DRUM ASSY (DEH-21A-R)	
716	A-7094-608-B	SCREW ASSY, DRUM FITTING		S004	1-762-351-21	SWITCH, PUSH (1 KEY) (REC PROOF)	

6-1-5. MECHANISM DECK ASSEMBLY (GEAR, ARM)



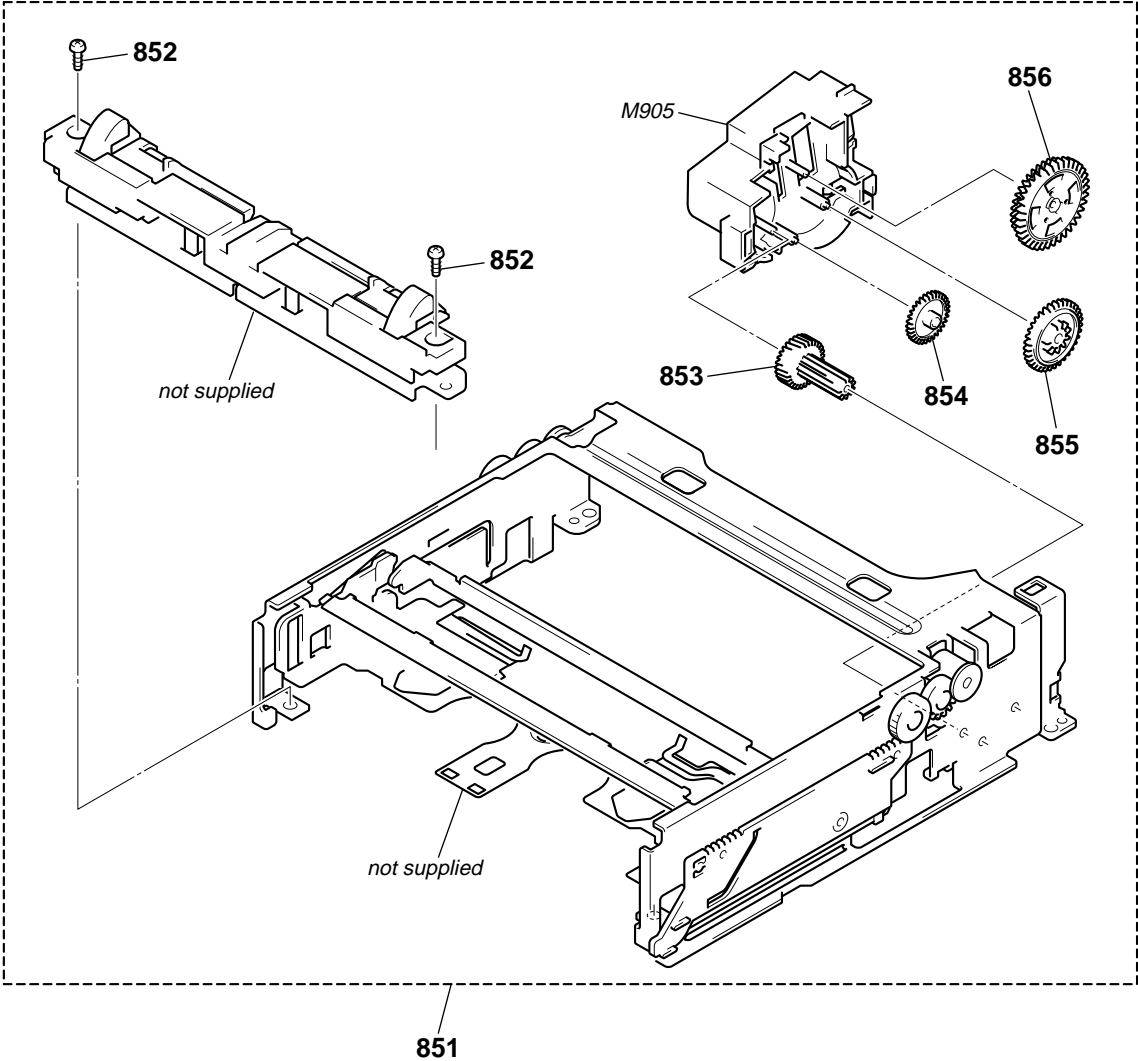
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
751	X-3949-923-1	GEAR (A) ASSY, IDLER		768	3-057-295-01	SPRING, EXTENSION (TG2)	
752	3-057-311-01	GEAR (B), IDLER		769	3-057-296-02	SPRING, EXTENSION (TG7)	
753	A-7094-599-A	REEL (LARGE) BLOCK ASSY		770	X-3949-921-1	BAND (TG7) ASSY	
754	3-057-267-01	GEAR, ENCODER		771	X-3949-920-1	BAND (TG2) ASSY	
755	3-057-294-01	GEAR, MAIN CAM		772	3-057-281-01	MAGNET, ET	
756	3-973-140-01	GEAR, SUB CAM		773	3-057-336-01	HOLDER, MAGNET	
* 757	3-057-302-01	SLIDER, SBR		774	3-057-344-01	SPRING, COMPRESSION (TG ARM)	
* 758	3-057-314-01	SLIDER, SUB		775	3-726-829-01	WASHER, STOPPER	
759	X-3950-816-1	ARM ASSY, LOADING		776	3-057-232-01	SPRING, COMPRESSION (TG)	
760	3-057-221-01	SLIDER, PINCH		777	3-057-238-01	RING, TG	
* 761	3-057-252-01	ARM, SUB SLIDER		778	3-057-237-01	SLEEVE, TG	
762	3-973-159-01	GEAR, JOINT		779	3-057-235-01	ROLLER, TG	
763	3-057-222-02	HOLDER, MOTOR		780	3-057-234-01	FLANGE, TG UPPER	
765	3-973-266-01	SCREW (M2X2.2 (MEK)), HEAD		781	3-057-337-01	ROLLER, TG7	
766	X-3949-918-1	ARM ASSY, TG2		782	3-063-887-01	FLANGE (2), TG UPPER	
767	X-3949-919-1	ARM ASSY, TG7		M902	X-3946-702-1	MOTOR ASSY, CAM	

6-1-6. MECHANISM DECK ASSEMBLY (MOTOR, MD BOARD)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
801	A-7025-007-A	COASTER (T) BLOCK ASSY		820	3-057-282-01	SLIDER, MAIN	
802	A-7025-006-A	COASTER (S) BLOCK ASSY		821	1-657-785-11	FP-248 FLEXIBLE BOARD (DEW SENSOR)	
* 803	3-057-283-01	ARM, MAIN SLIDER		822	3-057-320-01	BLOCK, REEL LOCK RELEASE	
804	X-3949-916-9	CHASSIS ASSY, MECHANICAL		823	3-057-354-01	SPRING, REEL LOCK RELEASE	
805	X-3949-924-1	STOPPER ASSY, PENDULUM		824	A-7067-229-A	MD-76 BOARD, COMPLETE	
806	3-947-503-01	SCREW (M1.4)		* 825	3-057-376-01	HOLDER, SENSOR	
807	3-732-817-01	SCREW (2X4.5), TAPPING		* 826	3-057-555-01	HOLDER, LED	
808	3-973-266-01	SCREW (M2X2.2 (MEK)), HEAD		827	X-3950-199-1	BASE (S) ASSY, REEL (SERVICE)	
809	3-973-142-01	STOPPER, COASTER PUNCHING		828	X-3950-200-1	BASE (T) ASSY, REEL (SERVICE)	
810	X-3946-690-1	ARM (S) ASSY, GL		829	3-057-265-01	RETAINER, REEL BASE	
811	X-3946-689-1	ARM (T) ASSY, GL		830	3-941-343-21	TAPE (A)	
812	3-973-146-02	SPRING (S), GL TORSION		831	3-726-829-01	WASHER, STOPPER	
813	3-973-156-02	SPRING (T), GL TORSION		832	3-064-576-01	ECLIPSER	
814	3-973-264-01	GEAR (S), GL		D001	8-719-988-42	DIODE GL453S	
815	3-973-138-01	GEAR (T), GL		M903	8-835-648-01	MOTOR, DC SCD17A/J-N (CAPSTAN)	
816	3-727-176-01	WASHER, STOPPER		M904	X-3949-928-1	MOTOR ASSY, REEL	
817	3-973-143-01	WASHER, COASTER STOPPER		Q001	8-729-907-25	PHOTO TRANISTOR PT4850F (TAPE END)	
818	3-057-339-01	COVER, ENCODER		Q002	8-729-907-25	PHOTO TRANISTOR PT4850F (TAPE TOP)	
819	3-057-340-01	COVER, CAPSTAN					

6-1-7. MECHANISM DECK ASSEMBLY
(CASSETTE COMPARTMENT)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
851	A-7094-602-B	COMPARTMENT BLOCK ASSY		855	3-057-255-01	GEAR (B)	
852	3-732-817-01	SCREW (2X4.5), TAPPING		856	A-7094-689-A	CD BLOCK ASSY, GEAR (SERVICE)	
853	3-057-253-01	GEAR, WHEEL		M905	X-3949-925-1	MOTOR ASSY, FL	
854	3-057-254-01	GEAR (A)					

DC/DC CONVERTER UNIT (DC-1492)

6-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS**
All resistors are in ohms.
METAL: Metal-film resistor.
METAL OXIDE: Metal oxide-film resistor.
F: nonflammable

- SEMICONDUCTORS**
In each case, u: μ , for example:
uA. : μ A. . uPA. : μ PA. .
uPB. : μ PB. . uPC. : μ PC. .
uPD. : μ PD. .
- CAPACITORS**
uF: μ F
- COILS**
uH: μ H

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark				Ref. No.	Part No.	Description	Remark			
Δ	1-476-405-11	DC/DC CONVERTER UNIT (DC-1492)	*****				C316	1-128-469-51	ELECT	56uF	20%	50V	
			(Ref. No.: 60,000 Series)				C317	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V	
		< CAPACITOR >											
C102	1-126-140-91	ELECT	470uF	20%	25V		C318	1-109-994-91	CERAMIC CHIP	2.2uF	10%	10V	
C103	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V		C319	1-109-994-91	CERAMIC CHIP	2.2uF	10%	10V	
C104	1-126-140-91	ELECT	470uF	20%	25V		C402	1-124-599-91	ELECT	220uF	20%	25V	
C106	1-164-004-91	CERAMIC CHIP	0.1uF	10%	25V		C403	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V	
C107	1-164-004-91	CERAMIC CHIP	0.1uF	10%	25V		C404	1-124-599-91	ELECT	220uF	20%	25V	
C108	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V		C406	1-164-004-91	CERAMIC CHIP	0.1uF	10%	25V	
C109	1-109-994-91	CERAMIC CHIP	2.2uF	10%	10V		C407	1-164-004-91	CERAMIC CHIP	0.1uF	10%	25V	
C110	1-164-004-91	CERAMIC CHIP	0.1uF	10%	25V		C408	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V	
C111	1-164-004-91	CERAMIC CHIP	0.1uF	10%	25V		C409	1-109-994-91	CERAMIC CHIP	2.2uF	10%	10V	
C112	1-126-614-91	ELECT	180uF	20%	16V		C410	1-164-004-91	CERAMIC CHIP	0.1uF	10%	25V	
C113	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V		C411	1-164-004-91	CERAMIC CHIP	0.1uF	10%	25V	
C114	1-109-994-91	CERAMIC CHIP	2.2uF	10%	10V		C412	1-128-469-51	ELECT	56uF	20%	50V	
C202	1-124-599-91	ELECT	220uF	20%	25V		C413	1-109-994-91	CERAMIC CHIP	2.2uF	10%	10V	
C203	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V		C414	1-109-994-91	CERAMIC CHIP	2.2uF	10%	10V	
C204	1-124-599-91	ELECT	220uF	20%	25V		C415	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V	
C206	1-164-004-91	CERAMIC CHIP	0.1uF	10%	25V		C601	1-128-469-51	ELECT	56uF	20%	50V	
C207	1-164-004-91	CERAMIC CHIP	0.1uF	10%	25V		C602	9-885-010-77	CERAMIC CHIP	2.2uF			
C208	1-163-009-91	CERAMIC CHIP	0.001uF	10%	50V		C603	9-885-010-77	CERAMIC CHIP	2.2uF			
C209	1-164-004-91	CERAMIC CHIP	0.1uF	10%	25V		C701	1-164-004-91	CERAMIC CHIP	0.1uF	10%	25V	
C210	1-164-004-91	CERAMIC CHIP	0.1uF	10%	25V		C801	1-164-004-91	CERAMIC CHIP	0.1uF	10%	25V	
C211	1-126-614-91	ELECT	180uF	20%	16V		C802	1-126-941-91	ELECT	470uF	20%	25V	
C212	1-109-994-91	CERAMIC CHIP	2.2uF	10%	10V		C803	1-126-941-91	ELECT	470uF	20%	25V	
C213	1-109-994-91	CERAMIC CHIP	2.2uF	10%	10V		C804	1-163-009-91	CERAMIC CHIP	0.001uF	10%	50V	
C215	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V		C911	1-109-994-91	CERAMIC CHIP	2.2uF	10%	10V	
C216	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V		C912	1-109-994-91	CERAMIC CHIP	2.2uF	10%	10V	
C302	1-124-599-91	ELECT	220uF	20%	25V		< CONNECTOR >						
C303	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V		CN1	1-564-015-11	PIN CONNECTOR	5P			
C304	1-124-599-91	ELECT	220uF	20%	25V		CN2	1-564-018-11	PIN CONNECTOR	8P			
C306	1-164-004-91	CERAMIC CHIP	0.1uF	10%	25V		CN3	1-564-018-11	PIN CONNECTOR	8P			
C307	1-164-004-91	CERAMIC CHIP	0.1uF	10%	25V		CN4	1-564-017-11	PIN CONNECTOR	7P			
C308	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V		CN5	1-564-012-11	PIN CONNECTOR	2P			
C309	1-109-994-91	CERAMIC CHIP	2.2uF	10%	10V		< DIODE >						
C310	1-164-004-91	CERAMIC CHIP	0.1uF	10%	25V		D101	8-719-066-98	DIODE	RB051L-40TE25			
C311	1-164-004-91	CERAMIC CHIP	0.1uF	10%	25V		D102	8-719-988-61	DIODE	1SS355TE-17			
C312	1-128-469-51	ELECT	56uF	20%	50V		D201	8-719-066-98	DIODE	RB051L-40TE25			
C313	1-109-994-91	CERAMIC CHIP	2.2uF	10%	10V		D202	8-719-988-61	DIODE	1SS355TE-17			
C314	1-109-994-91	CERAMIC CHIP	2.2uF	10%	10V		D301	8-719-066-98	DIODE	RB051L-40TE25			
C315	1-109-994-91	CERAMIC CHIP	2.2uF	10%	10V		D302	8-719-988-61	DIODE	1SS355TE-17			
							D401	8-719-066-98	DIODE	RB051L-40TE25			

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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
D402	8-719-988-61	DIODE 1SS355TE-17		< TRANSISTOR >			
< FERRITE BEAD >				Q101	8-729-026-59	TRANSISTOR	FMY1A-T148
FB101	1-469-185-11	FERRITE	0uH	Q102	9-885-010-82	TRANSISTOR	2SJ473-01L
FB201	1-469-185-11	FERRITE	0uH	Q201	8-729-026-59	TRANSISTOR	FMY1A-T148
FB301	1-469-185-11	FERRITE	0uH	Q202	9-885-010-82	TRANSISTOR	2SJ473-01L
FB401	1-469-185-11	FERRITE	0uH	Q301	8-729-026-59	TRANSISTOR	FMY1A-T148
< IC >				Q302	9-885-010-82	TRANSISTOR	2SJ473-01L
IC101	8-759-264-50	IC MB3759PF-ER		Q401	8-729-026-59	TRANSISTOR	FMY1A-T148
IC201	8-759-264-50	IC MB3759PF-ER		Q402	9-885-010-82	TRANSISTOR	2SJ473-01L
IC301	8-759-264-50	IC MB3759PF-ER		Q701	8-729-027-59	TRANSISTOR	DTC144EKA-T146
IC401	8-759-264-50	IC MB3759PF-ER		Q702	9-885-010-83	FET	F8006N
IC801	9-885-010-81	IC NJM2380AU		Q703	9-885-010-83	FET	F8006N
< JUMPER RESISTOR >				Q704	9-885-010-83	FET	F8006N
JC101	1-216-295-11	SHORT	0	Q705	8-729-027-59	TRANSISTOR	DTC144EKA-T146
JC103	1-216-295-11	SHORT	0	Q706	8-729-027-59	TRANSISTOR	DTC144EKA-T146
JC201	1-216-295-11	SHORT	0	Q707	8-729-920-75	TRANSISTOR	2SC2412K-T-146-QR
JC202	1-216-295-11	SHORT	0	Q708	9-885-010-82	TRANSISTOR	2SJ473-01L
JC203	1-216-296-00	SHORT	0	Q709	8-729-920-75	TRANSISTOR	2SC2412K-T-146-QR
JC204	1-216-295-11	SHORT	0	< RESISTOR >			
JC301	1-216-296-00	SHORT	0	R101	1-216-065-00	METAL CHIP	4.7K 5% 1/10W
JC305	1-216-296-00	SHORT	0	R102	1-216-057-91	METAL CHIP	2.2K 5% 1/10W
JC306	1-216-295-11	SHORT	0	R103	1-216-202-91	METAL CHIP	1.5K 5% 1/8W
JC401	1-216-296-00	SHORT	0	R104	1-216-051-91	METAL CHIP	1.2K 5% 1/10W
JC403	1-216-296-00	SHORT	0	R106	1-208-806-91	RES-CHIP	10K 0.5% 1/10W
JC404	1-216-296-00	SHORT	0	R107	1-208-766-91	RES-CHIP	220 0.5% 1/10W
JC405	1-216-296-00	SHORT	0	R109	1-216-049-11	METAL CHIP	1.0K 5% 1/10W
JC601	1-216-296-00	SHORT	0	R110	1-218-191-11	METAL OXIDE	0.1 1W F
JC602	1-216-296-00	SHORT	0	R111	1-208-802-91	RES-CHIP	6.8K 0.5% 1/10W
JC701	1-216-049-11	METAL CHIP	1.0K 5% 1/10W (Note)	R112	1-216-295-11	SHORT	0
< COIL >				R113	1-208-806-91	RES-CHIP	10K 0.5% 1/10W
L101	1-414-740-21	INDUCTOR	4.7uH	R114	1-216-049-11	METAL CHIP	1.0K 5% 1/10W
L102	9-885-010-76	COIL, CHOKE	100uH	R117	1-216-049-11	METAL CHIP	1.0K 5% 1/10W
L103	1-414-740-21	INDUCTOR	4.7uH	R118	1-216-065-00	METAL CHIP	4.7K 5% 1/10W
L202	9-885-010-76	COIL, CHOKE	100uH	R120	1-216-049-11	METAL CHIP	1.0K 5% 1/10W
L203	1-414-740-21	INDUCTOR	4.7uH	R121	1-216-061-00	METAL CHIP	3.3K 5% 1/10W
L204	1-414-740-21	INDUCTOR	4.7uH	R123	1-216-073-91	METAL CHIP	10K 5% 1/10W
L205	1-414-740-21	INDUCTOR	4.7uH	R124	1-216-097-11	METAL CHIP	100K 5% 1/10W
L302	9-885-010-76	COIL, CHOKE	100uH	R125	1-216-037-91	METAL CHIP	330 5% 1/10W
L303	1-414-740-21	INDUCTOR	4.7uH	R126	1-216-011-91	METAL CHIP	27 5% 1/10W
L304	1-414-740-21	INDUCTOR	4.7uH	R127	1-216-065-00	METAL CHIP	4.7K 5% 1/10W
L305	1-414-740-21	INDUCTOR	4.7uH	R201	1-216-065-00	METAL CHIP	4.7K 5% 1/10W
L306	1-414-740-21	INDUCTOR	4.7uH	R202	1-216-057-91	METAL CHIP	2.2K 5% 1/10W
L307	1-414-740-21	INDUCTOR	4.7uH	R203	1-216-202-91	METAL CHIP	1.5K 5% 1/8W
L401	1-414-740-21	INDUCTOR	4.7uH	R204	1-216-051-91	METAL CHIP	1.2K 5% 1/10W
L402	9-885-010-76	COIL, CHOKE	100uH	R206	1-208-806-91	RES-CHIP	10K 0.5% 1/10W
L403	1-414-740-21	INDUCTOR	4.7uH	R207	1-208-759-91	RES-CHIP	110 0.5% 1/10W
L404	1-414-740-21	INDUCTOR	4.7uH	R209	1-216-049-11	METAL CHIP	1.0K 5% 1/10W
L405	1-414-740-21	INDUCTOR	4.7uH	R210	1-218-191-11	METAL OXIDE	0.1 1W F
L601	1-414-740-21	INDUCTOR	4.7uH	R211	1-208-804-91	RES-CHIP	8.2K 0.5% 1/10W
L602	1-414-740-21	INDUCTOR	4.7uH	R212	1-208-784-91	RES-CHIP	1.2K 0.5% 1/10W
L603	1-414-740-21	INDUCTOR	4.7uH	R213	1-208-806-91	RES-CHIP	10K 0.5% 1/10W
L604	1-414-740-21	INDUCTOR	4.7uH	R214	1-216-049-11	METAL CHIP	1.0K 5% 1/10W
				R217	1-216-065-00	METAL CHIP	4.7K 5% 1/10W
				R218	1-216-049-11	METAL CHIP	1.0K 5% 1/10W
				R220	1-216-049-11	METAL CHIP	1.0K 5% 1/10W
				R221	1-216-061-00	METAL CHIP	3.3K 5% 1/10W

Note: Resistor is mounted to the location where JC701 is printed.

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Ref. No.	Part No.	Description	Remark
R223	1-208-806-91	RES-CHIP 10K	0.5% 1/10W
R224	1-216-037-91	METAL CHIP 330	5% 1/10W
R225	1-216-011-91	METAL CHIP 27	5% 1/10W
R226	1-216-067-91	METAL CHIP 5.6K	5% 1/10W
R301	1-216-065-00	METAL CHIP 4.7K	5% 1/10W
R302	1-216-057-91	METAL CHIP 2.2K	5% 1/10W
R303	1-216-202-91	METAL CHIP 1.5K	5% 1/8W
R304	1-216-051-91	METAL CHIP 1.2K	5% 1/10W
R306	1-208-806-91	RES-CHIP 10K	0.5% 1/10W
R307	1-208-770-91	RES-CHIP 330	0.5% 1/10W
R309	1-216-049-11	METAL CHIP 1.0K	5% 1/10W
R310	1-218-191-11	METAL OXIDE 0.1	1W F
R311	1-208-818-91	RES-CHIP 33K	0.5% 1/10W
R312	1-208-793-91	RES-CHIP 3.0K	0.5% 1/10W
R313	1-208-806-91	RES-CHIP 10K	0.5% 1/10W
R314	1-216-049-11	METAL CHIP 1.0K	5% 1/10W
R317	1-216-049-11	METAL CHIP 1.0K	5% 1/10W
R318	1-216-065-00	METAL CHIP 4.7K	5% 1/10W
R320	1-216-049-11	METAL CHIP 1.0K	5% 1/10W
R321	1-216-061-00	METAL CHIP 3.3K	5% 1/10W
R323	1-216-073-91	METAL CHIP 10K	5% 1/10W
R324	1-216-097-11	METAL CHIP 100K	5% 1/10W
R325	1-216-037-91	METAL CHIP 330	5% 1/10W
R326	1-216-011-91	METAL CHIP 27	5% 1/10W
R327	1-208-803-91	RES-CHIP 7.5K	0.5% 1/10W
R401	1-216-065-00	METAL CHIP 4.7K	5% 1/10W
R402	1-216-057-91	METAL CHIP 2.2K	5% 1/10W
R403	1-216-202-91	METAL CHIP 1.5K	5% 1/8W
R404	1-216-051-91	METAL CHIP 1.2K	5% 1/10W
R406	1-216-349-11	METAL OXIDE 1.0	5% 1W F
R407	1-208-770-91	RES-CHIP 330	0.5% 1/10W
R408	1-208-810-91	RES-CHIP 15K	0.5% 1/10W
R409	1-208-806-91	RES-CHIP 10K	0.5% 1/10W
R410	1-208-790-91	RES-CHIP 2.2K	0.5% 1/10W
R411	1-208-814-91	RES-CHIP 22K	0.5% 1/10W
R412	1-208-798-91	RES-CHIP 4.7K	0.5% 1/10W
R413	1-216-049-11	METAL CHIP 1.0K	5% 1/10W
R414	1-208-806-91	RES-CHIP 10K	0.5% 1/10W
R415	1-208-806-91	RES-CHIP 10K	0.5% 1/10W
R416	1-216-049-11	METAL CHIP 1.0K	5% 1/10W
R417	1-216-049-11	METAL CHIP 1.0K	5% 1/10W
R418	1-216-065-00	METAL CHIP 4.7K	5% 1/10W
R420	1-216-049-11	METAL CHIP 1.0K	5% 1/10W
R421	1-216-061-00	METAL CHIP 3.3K	5% 1/10W
R423	1-216-097-11	METAL CHIP 100K	5% 1/10W
R424	1-216-105-00	METAL CHIP 220K	5% 1/10W
R425	1-216-037-91	METAL CHIP 330	5% 1/10W
R426	1-216-011-91	METAL CHIP 27	5% 1/10W
R427	1-208-809-91	RES-CHIP 13K	0.5% 1/10W
R428	1-208-806-91	RES-CHIP 10K	0.5% 1/10W
R431	1-216-065-00	METAL CHIP 4.7K	5% 1/10W
R701	1-216-041-91	METAL CHIP 470	5% 1/10W
R704	1-216-057-91	METAL CHIP 2.2K	5% 1/10W
R707	1-216-057-91	METAL CHIP 2.2K	5% 1/10W
R711	1-216-097-11	METAL CHIP 100K	5% 1/10W
R712	1-216-097-11	METAL CHIP 100K	5% 1/10W
R713	1-216-097-11	METAL CHIP 100K	5% 1/10W
R714	1-216-097-11	METAL CHIP 100K	5% 1/10W

Ref. No.	Part No.	Description	Remark
R716	1-216-065-00	METAL CHIP 4.7K	5% 1/10W
R717	1-216-097-11	METAL CHIP 100K	5% 1/10W
R718	1-216-065-00	METAL CHIP 4.7K	5% 1/10W
R719	1-216-065-00	METAL CHIP 4.7K	5% 1/10W
R720	1-216-065-00	METAL CHIP 4.7K	5% 1/10W
R721	1-216-065-00	METAL CHIP 4.7K	5% 1/10W
R722	1-216-065-00	METAL CHIP 4.7K	5% 1/10W
R723	1-216-065-00	METAL CHIP 4.7K	5% 1/10W
R724	1-216-089-11	METAL CHIP 47K	5% 1/10W
R725	1-216-081-91	METAL CHIP 22K	5% 1/10W
R726	1-216-089-11	METAL CHIP 47K	5% 1/10W
R727	1-216-089-11	METAL CHIP 47K	5% 1/10W
R801	1-216-059-91	METAL CHIP 2.7K	5% 1/10W
R802	1-216-341-11	METAL OXIDE 0.22	5% 1W F
R803	not supplied	LEAD, JUMPER (7.5mm) (Note)	
< DIODE >			
ZD101	8-719-056-90	DIODE UDZ-TE-17-13B	
ZD102	8-719-069-58	DIODE UDZS-TE17-7.5B	
ZD201	8-719-056-90	DIODE UDZ-TE-17-13B	
ZD202	8-719-069-56	DIODE UDZS-TE17-6.2B	
ZD301	8-719-056-90	DIODE UDZ-TE-17-13B	
ZD302	8-719-056-79	DIODE UDZ-TE-17-4.7B	
ZD401	8-719-056-90	DIODE UDZ-TE-17-13B	
ZD402	8-719-056-80	DIODE UDZ-TE-17-5.1B	
ZD701	8-719-056-87	DIODE UDZ-TE-17-10B	
ZD702	8-719-056-94	DIODE UDZ-TE-17-20B	
ZD703	8-719-056-94	DIODE UDZ-TE-17-20B	
A-7074-637-A FR-175 BOARD, COMPLETE			

(Ref. No.: 30,000 Series)			
< CAPACITOR >			
C501	1-164-505-11	CERAMIC CHIP 2.2uF	16V
C503	1-104-852-11	TANTAL. CHIP 22uF	20% 10V
C504	1-163-235-11	CERAMIC CHIP 22PF	5% 50V
< CONNECTOR >			
CN501	1-770-545-21	CONNECTOR, FFC/FPC 34P	
< DIODE >			
D501	8-719-067-40	DIODE STZ6.8N-T146	
D502	8-719-067-40	DIODE STZ6.8N-T146	
D503	8-719-067-40	DIODE STZ6.8N-T146	
D504	8-719-067-40	DIODE STZ6.8N-T146	
D506	8-719-067-40	DIODE STZ6.8N-T146	
D507	8-719-067-40	DIODE STZ6.8N-T146	
D508	8-719-067-40	DIODE STZ6.8N-T146	
D509	8-719-067-40	DIODE STZ6.8N-T146	
D510	8-719-078-90	DIODE CL-165HR/G1-D-T (ㇿ)	
D511	8-719-067-56	DIODE MA112-TX	
D512	8-719-067-40	DIODE STZ6.8N-T146	
D513	8-719-074-30	DIODE CL-190UR-CD-T (CAUTION)	
D514	8-719-038-03	DIODE CL-190Y-CD-T (ㇿ)	
D515	8-719-067-40	DIODE STZ6.8N-T146	
D516	8-719-038-03	DIODE CL-190Y-CD-T (DV CAM)	

Note: Jumper lead is mounted to the location where R803 is printed.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
D517	8-719-067-40	DIODE STZ6.8N-T146		S507	1-771-847-21	SWITCH, TACTILE (▶▶)	
D518	8-719-049-09	DIODE 1SS367-T3SONY		S508	1-771-847-21	SWITCH, TACTILE (■)	
D519	8-719-038-03	DIODE CL-190Y-CD-T (NTSC)		S509	1-771-847-21	SWITCH, TACTILE (▮)	
D520	8-719-067-40	DIODE STZ6.8N-T146		S510	1-771-847-21	SWITCH, TACTILE (●)	
D521	8-719-038-03	DIODE CL-190Y-CD-T (PAL)					
				A-7074-622-A HD-024 BOARD, COMPLETE (SERVICE)			

				(Ref. No.: 40,000 Series)			
D522	8-719-049-09	DIODE 1SS367-T3SONY		< BATTERY >			
D524	8-719-067-40	DIODE STZ6.8N-T146					
D525	8-719-038-03	DIODE CL-190Y-CD-T (REW ◀◀)					
D526	8-719-049-09	DIODE 1SS367-T3SONY					
D527	8-719-033-14	DIODE CL-170PG-CD-T (PLAY)					
D528	8-719-067-40	DIODE STZ6.8N-T146		BT701	1-528-694-11	BATTERY, V/L RICHARGEABL	
D529	8-719-038-03	DIODE CL-190Y-CD-T (▶▶ F FWD)		< CAPACITOR >			
D530	8-719-067-40	DIODE STZ6.8N-T146					
D531	8-719-049-09	DIODE 1SS367-T3SONY		C100	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
D532	8-719-038-03	DIODE CL-190Y-CD-T (PAUSE)		C101	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
				C102	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
D533	8-719-067-40	DIODE STZ6.8N-T146		C103	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
D535	8-719-074-30	DIODE CL-190UR-CD-T (REC)		C104	1-162-967-11	CERAMIC CHIP 0.0033uF 10% 50V	
D536	8-719-049-09	DIODE 1SS367-T3SONY					
D537	8-719-049-09	DIODE 1SS367-T3SONY		C105	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
D538	8-719-067-40	DIODE STZ6.8N-T146		C106	1-162-967-11	CERAMIC CHIP 0.0033uF 10% 50V	
< FERRITE BEAD >				C107	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
FB502	1-414-135-11	FERRITE 0uH		C108	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
< IC >				C109	1-164-739-11	CERAMIC CHIP 560PF 5% 50V	
IC501	8-749-923-29	IC RS-20E-T		C111	1-164-230-11	CERAMIC CHIP 220PF 5% 50V	
< TRANSISTOR >				C112	1-162-967-11	CERAMIC CHIP 0.0033uF 10% 50V	
Q510	8-729-900-52	TRANSISTOR UN2214-TX		C113	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
Q512	8-729-900-52	TRANSISTOR UN2214-TX		C114	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
< RESISTOR >				C115	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
R501	1-216-025-11	RES-CHIP 100 5% 1/10W		C116	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
R502	1-216-025-11	RES-CHIP 100 5% 1/10W		C117	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
R503	1-216-025-11	RES-CHIP 100 5% 1/10W		C118	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
R504	1-216-196-00	RES-CHIP 820 5% 1/8W		C119	1-119-869-91	CERAMIC CHIP 10uF 35V	
R505	1-216-184-00	RES-CHIP 270 5% 1/8W		C129	1-119-869-91	CERAMIC CHIP 10uF 35V	
R506	1-216-184-00	RES-CHIP 270 5% 1/8W		C130	1-119-869-91	CERAMIC CHIP 10uF 35V	
R507	1-216-184-00	RES-CHIP 270 5% 1/8W		C131	1-119-869-91	CERAMIC CHIP 10uF 35V	
R508	1-216-184-00	RES-CHIP 270 5% 1/8W		C132	1-119-869-91	CERAMIC CHIP 10uF 35V	
R509	1-216-009-91	RES-CHIP 22 5% 1/10W		C134	1-113-985-11	TANTAL. CHIP 10uF 20% 20V	
R510	1-216-184-00	RES-CHIP 270 5% 1/8W		C135	1-113-985-11	TANTAL. CHIP 10uF 20% 20V	
R512	1-216-184-00	RES-CHIP 270 5% 1/8W		C136	1-113-985-11	TANTAL. CHIP 10uF 20% 20V	
R513	1-216-184-00	RES-CHIP 270 5% 1/8W		C137	1-113-985-11	TANTAL. CHIP 10uF 20% 20V	
R514	1-216-184-00	RES-CHIP 270 5% 1/8W		C200	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
R515	1-216-184-00	RES-CHIP 270 5% 1/8W		C201	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
R516	1-216-194-00	METAL CHIP 680 5% 1/8W		C202	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
R517	1-216-295-11	SHORT 0		C203	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
R518	1-216-049-11	RES-CHIP 1K 5% 1/10W		C204	1-113-987-11	TANTAL. CHIP 4.7uF 20% 25V	
R519	1-216-025-11	RES-CHIP 100 5% 1/10W		C205	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
R520	1-216-196-00	RES-CHIP 820 5% 1/8W		C206	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
< SWITCH >				C207	1-131-861-91	TANTAL. CHIP 4.7uF 20% 20V	
S501	1-771-847-21	SWITCH, TACTILE (EJECT ▲)		C208	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
S502	1-771-847-21	SWITCH, TACTILE (ON/STANDBY)		C300	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
S503	1-553-977-00	SWITCH, SLIDE (REMOTE CONTROL)		C301	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
S504	1-570-724-11	SWITCH, SLIDE (INPUT SELECT)		C302	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
S505	1-771-847-21	SWITCH, TACTILE (◀◀)		C303	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
				C320	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
				C321	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
				C322	1-164-505-11	CERAMIC CHIP 2.2uF 16V	
				C323	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
				C324	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
				C325	1-164-360-11	CERAMIC CHIP 0.1uF 16V	

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Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
C326	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C573	1-113-985-11	TANTAL. CHIP	10uF	20%	20V
C327	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C601	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C329	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V	C602	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C330	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	C603	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C331	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	C604	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C400	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C606	1-115-156-11	CERAMIC CHIP	1uF		10V
C401	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C607	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C402	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C608	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C403	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C609	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C404	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C610	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C405	1-131-861-91	TANTAL. CHIP	4.7uF	20%	20V	C611	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C406	1-131-861-91	TANTAL. CHIP	4.7uF	20%	20V	C612	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C407	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C701	1-126-603-11	ELECT CHIP	4.7uF	20%	35V
C501	1-135-177-21	TANTALUM CHIP	1uF	20%	20V	C702	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C502	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	C703	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C503	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C704	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C504	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C707	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C505	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C708	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C506	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C709	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C507	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C710	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C508	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C711	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C509	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C712	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C510	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C713	1-113-985-11	TANTAL. CHIP	10uF	20%	20V
C511	1-131-861-91	TANTAL. CHIP	4.7uF	20%	20V	C714	1-126-395-11	ELECT	22uF	20%	16V
C512	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C715	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C515	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C716	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C518	1-164-739-11	CERAMIC CHIP	560PF	5%	50V	C717	1-126-246-11	ELECT CHIP	220uF	20%	4V
C519	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C718	1-126-246-11	ELECT CHIP	220uF	20%	4V
C520	1-131-861-91	TANTAL. CHIP	4.7uF	20%	20V	C719	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C521	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C720	1-104-852-11	TANTAL. CHIP	22uF	20%	10V
C522	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C721	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C523	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C722	1-104-852-11	TANTAL. CHIP	22uF	20%	10V
C524	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C723	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C525	1-131-861-91	TANTAL. CHIP	4.7uF	20%	20V	C727	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C526	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C728	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C527	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C729	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C528	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C730	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C529	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C732	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C551	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V	C733	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C552	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V	C734	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C553	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C735	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C554	1-119-751-11	TANTAL. CHIP	22uF	20%	16V	C736	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C555	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C737	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C556	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	< CONNECTOR >					
C557	1-119-751-11	TANTAL. CHIP	22uF	20%	16V	CN001	1-778-637-21	CONNECTOR, FFC/FPC (ZIF) 50P			
C558	1-119-751-11	TANTAL. CHIP	22uF	20%	16V	CN100	1-506-487-11	PIN, CONNECTOR 8P			
C559	1-113-985-11	TANTAL. CHIP	10uF	20%	20V	CN200	1-691-385-21	CONNECTOR, FFC/FPC 21P			
C560	1-164-156-11	CERAMIC CHIP	0.1uF		25V	CN201	1-691-385-21	CONNECTOR, FFC/FPC 21P			
C561	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	* CN300	1-580-055-21	PIN, CONNECTOR (SMD) 2P			
C562	1-113-985-11	TANTAL. CHIP	10uF	20%	20V	CN400	1-750-341-11	CONNECTOR, FFC/EPC (ZIF) 18P			
C563	1-113-985-11	TANTAL. CHIP	10uF	20%	20V	CN500	1-573-351-11	CONNECTOR, FFC/FPC (ZIF) 11P			
C564	1-164-156-11	CERAMIC CHIP	0.1uF		25V	* CN501	1-580-055-21	PIN, CONNECTOR (SMD) 2P			
C565	1-162-920-11	CERAMIC CHIP	27PF	5%	50V	CN601	1-506-486-11	PIN, CONNECTOR 7P			
C566	1-119-751-11	TANTAL. CHIP	22uF	20%	16V	CN602	1-770-545-21	CONNECTOR, FFC/FPC 34P			
C567	1-162-917-11	CERAMIC CHIP	15PF	5%	50V	CN703	1-774-770-11	CONNECTOR, FFC/FPC 30P			
C568	1-164-156-11	CERAMIC CHIP	0.1uF		25V	* CN704	1-580-756-21	PIN, CONNECTOR (SMD) 7P			
C569	1-164-230-11	CERAMIC CHIP	220PF	5%	50V	CN705	1-770-305-11	CONNECTOR, FFC/FPC 10P			
C570	1-113-985-11	TANTAL. CHIP	10uF	20%	20V	CN932	1-766-346-21	CONNECTOR, FFC/FPC 16P			
C571	1-164-156-11	CERAMIC CHIP	0.1uF		25V						
C572	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V						

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
< DIODE >				IC500	8-759-431-30	IC CXA8062R-EB	
D101	8-719-066-98	DIODE RB051L-40TE25		IC501	8-759-434-46	IC TA8486F (EL)	
D102	8-719-066-98	DIODE RB051L-40TE25		IC551	8-759-349-01	IC MC68HC68VBIFB	
D103	8-719-066-98	DIODE RB051L-40TE25		IC552	8-759-524-04	IC TC74VHC125FT (EL)	
D104	8-719-066-98	DIODE RB051L-40TE25		IC553	8-759-491-47	IC TC74VHCT08AFT (EL)	
D551	8-719-210-33	DIODE EC10DS2-TE12L5		IC601	8-759-580-20	IC uPD16431AGC-7ET	
D601	8-719-049-09	DIODE 1SS367-T3SONY		IC602	8-759-711-38	IC NJU7201U50-TE1	
D603	8-719-067-56	DIODE MA112-TX		IC603	8-759-082-60	IC TC7S66FU (TE85R)	
D604	8-719-067-56	DIODE MA112-TX		IC604	8-759-486-99	IC S-81250SGUP-DQD-T1	
D605	8-719-067-56	DIODE MA112-TX		IC605	8-759-529-76	IC TC74VHC595FT (EL)	
D606	8-719-067-56	DIODE MA112-TX		IC606	8-759-529-76	IC TC74VHC595FT (EL)	
D607	8-719-067-56	DIODE MA112-TX		IC607	8-759-062-66	IC TC7S66F (TE85R)	
D608	8-719-067-56	DIODE MA112-TX		IC608	8-759-242-70	IC TC7WU04F (TE12R)	
D701	8-719-073-28	DIODE MA729- (K8).S0		IC609	8-759-524-20	IC TC74VHC165FT (EL)	
D702	8-719-067-56	DIODE MA112-TX		IC610	8-759-443-08	IC TC7W241FU-TE12R	
D703	8-719-067-56	DIODE MA112-TX		IC701	8-759-486-99	IC S-81250SGUP-DQD-T1	
D704	8-719-067-56	DIODE MA112-TX		IC702	8-759-580-27	IC S-81236SGUP-DQ7-T1	
D705	8-719-062-16	DIODE 01ZA8.2 (TPL3)		IC703	8-759-391-99	IC NJU7102AM-TE1	
< FUSE >				IC704	8-759-424-79	IC S-8423YFS-T2	
△F100	1-532-777-21	FUSE, MICRO (SECONDARY) (1.25A/125V)		IC705	8-759-445-93	IC AK6440AM-E2	
△F601	1-576-447-21	FUSE, MICRO (630mA/24V)		IC706	8-759-642-45	IC TL1596CPW-ELM2000	
△F602	1-576-464-21	FUSE, MICRO (1A/24V)		IC707	8-759-694-96	IC S579639PZ-TEB	
△F603	1-576-465-21	FUSE, MICRO (0.315A/24V)		< JUMPER RESISTOR >			
< FERRITE BEAD >				JR501	1-216-864-11	METAL CHIP	0 5% 1/16W
FB601	1-414-445-11	FERRITE	0uH	JR502	1-216-864-11	METAL CHIP	0 5% 1/16W
FB701	1-414-445-11	FERRITE	0uH	JR503	1-216-864-11	METAL CHIP	0 5% 1/16W
FB702	1-414-445-11	FERRITE	0uH	JR504	1-216-864-11	METAL CHIP	0 5% 1/16W
FB703	1-414-445-11	FERRITE	0uH	JR505	1-216-864-11	METAL CHIP	0 5% 1/16W
FB704	1-414-445-11	FERRITE	0uH	< COIL >			
FB705	1-414-445-11	FERRITE	0uH	L100	1-406-823-11	INDUCTOR	10uH
FB706	1-414-445-11	FERRITE	0uH	L101	1-406-823-11	INDUCTOR	10uH
FB707	1-414-445-11	FERRITE	0uH	L102	1-424-522-21	INDUCTOR	10uH
FB708	1-414-445-11	FERRITE	0uH	L103	1-406-823-11	INDUCTOR	10uH
FB709	1-414-445-11	FERRITE	0uH	L104	1-409-535-41	INDUCTOR	100uH
FB710	1-414-445-11	FERRITE	0uH	L105	1-409-535-41	INDUCTOR	100uH
FB711	1-414-445-11	FERRITE	0uH	L106	1-424-523-21	INDUCTOR	22uH
FB712	1-414-445-11	FERRITE	0uH	L107	1-406-825-11	INDUCTOR	33uH
FB713	1-414-445-11	FERRITE	0uH	L200	1-414-398-11	INDUCTOR	10uH
FB714	1-414-445-11	FERRITE	0uH	L400	1-414-754-11	INDUCTOR	10uH
FB715	1-414-445-11	FERRITE	0uH	L500	1-414-754-11	INDUCTOR	10uH
FB716	1-414-445-11	FERRITE	0uH	L551	1-414-398-11	INDUCTOR	10uH
FB717	1-414-445-11	FERRITE	0uH	L552	1-414-398-11	INDUCTOR	10uH
FB718	1-414-445-11	FERRITE	0uH	L553	1-414-398-11	INDUCTOR	10uH
FB719	1-414-445-11	FERRITE	0uH	L554	1-410-389-31	INDUCTOR CHIP	47uH
FB720	1-414-445-11	FERRITE	0uH	L705	1-412-029-11	INDUCTOR CHIP	10uH
FB721	1-414-445-11	FERRITE	0uH	L706	1-412-029-11	INDUCTOR CHIP	10uH
FB722	1-414-445-11	FERRITE	0uH	L707	1-412-029-11	INDUCTOR CHIP	10uH
FB723	1-414-445-11	FERRITE	0uH	L708	1-412-029-11	INDUCTOR CHIP	10uH
< IC >				< TRANSISTOR >			
IC100	8-759-060-94	IC MB3785APFV-G-BND-ER		Q100	8-729-048-75	TRANSISTOR	CPH3109-TL
IC200	8-759-339-61	IC LB1897D		Q101	8-729-048-75	TRANSISTOR	CPH3109-TL
IC202	8-759-338-95	IC NJM2903V (TE2)		Q102	8-729-048-75	TRANSISTOR	CPH3109-TL
IC300	8-759-327-61	IC LB8112V-TLM		Q103	8-729-048-75	TRANSISTOR	CPH3109-TL
IC400	8-759-431-41	IC LB1991V-TLM		Q104	8-729-216-22	TRANSISTOR	2SB709A-QRS-TX
				Q105	8-729-037-72	TRANSISTOR	UN9211J- (TX) .S0

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

HD-024

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
Q200	8-729-216-22	TRANSISTOR	2SB709A-QRS-TX			R204	1-216-857-11	METAL CHIP	1M	5%	1/16W
Q201	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8) .SO			R205	1-217-671-11	METAL CHIP	1	5%	1/10W
Q301	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8) .SO			R206	1-217-671-11	METAL CHIP	1	5%	1/10W
Q302	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8) .SO			R207	1-217-671-11	METAL CHIP	1	5%	1/10W
Q551	8-729-230-49	TRANSISTOR	2SC2712Y-TE85L			R208	1-217-671-11	METAL CHIP	1	5%	1/10W
Q552	8-729-230-49	TRANSISTOR	2SC2712Y-TE85L			R209	1-216-853-11	METAL CHIP	470K	5%	1/16W
Q553	8-729-230-49	TRANSISTOR	2SC2712Y-TE85L			R211	1-216-864-11	METAL CHIP	0	5%	1/16W
Q554	8-729-230-49	TRANSISTOR	2SC2712Y-TE85L			R212	1-216-821-11	METAL CHIP	1K	5%	1/16W
Q555	8-729-230-49	TRANSISTOR	2SC2712Y-TE85L			R223	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
Q556	8-729-216-21	TRANSISTOR	2SA1162Y-TE85L			R224	1-216-841-11	METAL CHIP	47K	5%	1/16W
Q557	8-729-216-21	TRANSISTOR	2SA1162Y-TE85L			R225	1-216-295-11	SHORT	0		
Q601	8-729-402-93	TRANSISTOR	UN5214-TX			R300	1-216-835-11	METAL CHIP	15K	5%	1/16W
Q602	8-729-402-93	TRANSISTOR	UN5214-TX			R301	1-216-835-11	METAL CHIP	15K	5%	1/16W
Q603	8-729-402-93	TRANSISTOR	UN5214-TX			R302	1-216-818-11	METAL CHIP	560	5%	1/16W
Q604	8-729-402-93	TRANSISTOR	UN5214-TX			R303	1-216-818-11	METAL CHIP	560	5%	1/16W
Q605	8-729-402-93	TRANSISTOR	UN5214-TX			R304	1-216-864-11	METAL CHIP	0	5%	1/16W
Q606	8-729-402-93	TRANSISTOR	UN5214-TX			R306	1-216-295-11	SHORT	0		
Q607	8-729-402-93	TRANSISTOR	UN5214-TX			R307	1-216-864-11	METAL CHIP	0	5%	1/16W
Q608	8-729-402-93	TRANSISTOR	UN5214-TX			R308	1-216-864-11	METAL CHIP	0	5%	1/16W
Q609	8-729-402-93	TRANSISTOR	UN5214-TX			R309	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
Q611	8-729-402-93	TRANSISTOR	UN5214-TX			R310	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
Q612	8-729-402-42	TRANSISTOR	UN5213-TX			R311	1-218-859-11	METAL CHIP	3.3K	0.5%	1/16W
Q613	8-729-402-42	TRANSISTOR	UN5213-TX			R312	1-218-863-11	METAL CHIP	4.7K	0.5%	1/16W
Q614	8-729-402-42	TRANSISTOR	UN5213-TX			R313	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
Q701	8-729-015-74	TRANSISTOR	UN5111-TX			R314	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
Q702	8-729-048-50	TRANSISTOR	2SK3018-T106			R315	1-216-841-11	METAL CHIP	47K	5%	1/16W
Q703	8-729-041-23	TRANSISTOR	NDS356AP			R316	1-216-841-11	METAL CHIP	47K	5%	1/16W
< RESISTOR >						R323	1-216-864-11	METAL CHIP	0	5%	1/16W
R100	1-216-049-11	RES-CHIP	1K	5%	1/10W	R324	1-216-833-11	METAL CHIP	10K	5%	1/16W
R101	1-216-041-00	METAL CHIP	470	5%	1/10W	R325	1-216-845-11	METAL CHIP	100K	5%	1/16W
R102	1-216-025-11	RES-CHIP	100	5%	1/10W	R326	1-216-833-11	METAL CHIP	10K	5%	1/16W
R103	1-216-841-11	METAL CHIP	47K	5%	1/16W	R327	1-216-833-11	METAL CHIP	10K	5%	1/16W
R104	1-218-890-11	METAL CHIP	62K	0.5%	1/16W	R328	1-216-833-11	METAL CHIP	10K	5%	1/16W
R105	1-218-883-11	METAL CHIP	33K	0.5%	1/16W	R329	1-216-864-11	METAL CHIP	0	5%	1/16W
R106	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	R330	1-216-845-11	METAL CHIP	100K	5%	1/16W
R107	1-218-865-11	METAL CHIP	5.6K	0.5%	1/16W	R332	1-216-845-11	METAL CHIP	100K	5%	1/16W
R108	1-216-864-11	METAL CHIP	0	5%	1/16W	R333	1-216-833-11	METAL CHIP	10K	5%	1/16W
R109	1-216-864-11	METAL CHIP	0	5%	1/16W	R334	1-216-833-11	METAL CHIP	10K	5%	1/16W
R110	1-216-864-11	METAL CHIP	0	5%	1/16W	R335	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R111	1-216-833-11	METAL CHIP	10K	5%	1/16W	R336	1-216-845-11	METAL CHIP	100K	5%	1/16W
R112	1-216-049-11	RES-CHIP	1K	5%	1/10W	R337	1-217-671-11	METAL CHIP	1	5%	1/10W
R114	1-216-837-11	METAL CHIP	22K	5%	1/16W	R339	1-218-863-11	METAL CHIP	4.7K	0.5%	1/16W
R115	1-216-839-11	METAL CHIP	33K	5%	1/16W	R340	1-218-859-11	METAL CHIP	3.3K	0.5%	1/16W
R116	1-218-878-11	METAL CHIP	20K	0.5%	1/16W	R342	1-217-671-11	METAL CHIP	1	5%	1/10W
R117	1-216-834-11	METAL CHIP	12K	5%	1/16W	R400	1-216-833-11	METAL CHIP	10K	5%	1/16W
R118	1-216-864-11	METAL CHIP	0	5%	1/16W	R402	1-216-295-11	SHORT	0		
R120	1-216-864-11	METAL CHIP	0	5%	1/16W	R403	1-216-836-11	METAL CHIP	18K	5%	1/16W
R122	1-216-864-11	METAL CHIP	0	5%	1/16W	R405	1-216-845-11	METAL CHIP	100K	5%	1/16W
R123	1-216-838-11	METAL CHIP	27K	5%	1/16W	R500	1-216-295-11	SHORT	0		
R124	1-216-864-11	METAL CHIP	0	5%	1/16W	R501	1-218-839-11	METAL CHIP	470	0.5%	1/16W
R126	1-216-833-11	METAL CHIP	10K	5%	1/16W	R503	1-216-833-11	METAL CHIP	10K	5%	1/16W
R127	1-216-842-11	METAL CHIP	56K	5%	1/16W	R504	1-216-833-11	METAL CHIP	10K	5%	1/16W
R128	1-216-864-11	METAL CHIP	0	5%	1/16W	R505	1-216-833-11	METAL CHIP	10K	5%	1/16W
R131	1-218-865-11	METAL CHIP	5.6K	0.5%	1/16W	R506	1-216-864-11	METAL CHIP	0	5%	1/16W
R136	1-216-864-11	METAL CHIP	0	5%	1/16W	R507	1-216-821-11	METAL CHIP	1K	5%	1/16W
R200	1-216-821-11	METAL CHIP	1K	5%	1/16W	R508	1-218-899-11	METAL CHIP	150K	0.5%	1/16W
R201	1-216-833-11	METAL CHIP	10K	5%	1/16W	R509	1-218-871-11	METAL CHIP	10K	0.5%	1/16W
R202	1-218-878-11	METAL CHIP	20K	0.5%	1/16W	R511	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R203	1-218-873-11	METAL CHIP	12K	0.5%	1/16W	R512	1-216-809-11	METAL CHIP	100	5%	1/16W
						R513	1-216-809-11	METAL CHIP	100	5%	1/16W

Ref. No.	Part No.	Description				Remark	Ref. No.	Part No.	Description				Remark
R514	1-216-809-11	METAL CHIP	100	5%	1/16W		R614	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R515	1-217-671-11	METAL CHIP	1	5%	1/10W		R615	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R516	1-217-671-11	METAL CHIP	1	5%	1/10W		R616	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R518	1-218-879-11	METAL CHIP	22K	0.5%	1/16W		R617	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R519	1-218-879-11	METAL CHIP	22K	0.5%	1/16W		R618	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R520	1-218-897-11	METAL CHIP	120K	0.5%	1/16W		R619	1-216-809-11	METAL CHIP	100	5%	1/16W	
R522	1-218-901-11	METAL CHIP	180K	0.5%	1/16W		R620	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R525	1-216-864-11	METAL CHIP	0	5%	1/16W		R621	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R526	1-218-629-91	METAL CHIP	180	5%	1W		R622	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R527	1-218-629-91	METAL CHIP	180	5%	1W		R623	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R528	1-218-629-91	METAL CHIP	180	5%	1W		R624	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R529	1-218-629-91	METAL CHIP	180	5%	1W		R625	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R532	1-217-671-11	METAL CHIP	1	5%	1/10W		R626	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R533	1-217-671-11	METAL CHIP	1	5%	1/10W		R627	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R534	1-217-671-11	METAL CHIP	1	5%	1/10W		R628	1-216-809-11	METAL CHIP	100	5%	1/16W	
R535	1-217-671-11	METAL CHIP	1	5%	1/10W		R701	1-216-802-11	RES-CHIP	27	5%	1/16W	
R551	1-216-833-11	METAL CHIP	10K	5%	1/16W		R702	1-218-911-11	METAL CHIP	470K	0.5%	1/16W	
R552	1-216-853-11	METAL CHIP	470K	5%	1/16W		R703	1-218-905-11	METAL CHIP	270K	0.5%	1/16W	
R553	1-216-841-11	METAL CHIP	47K	5%	1/16W		R704	1-218-871-11	METAL CHIP	10K	0.5%	1/16W	
R554	1-216-841-11	METAL CHIP	47K	5%	1/16W		R705	1-216-802-11	RES-CHIP	27	5%	1/16W	
R555	1-216-813-11	METAL CHIP	220	5%	1/16W		R706	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R556	1-216-849-11	METAL CHIP	220K	5%	1/16W		R707	1-216-864-11	METAL CHIP	0	5%	1/16W	
R557	1-216-837-11	METAL CHIP	22K	5%	1/16W		R708	1-218-904-11	METAL CHIP	240K	0.5%	1/16W	
R558	1-216-839-11	METAL CHIP	33K	5%	1/16W		R709	1-218-907-11	METAL CHIP	330K	0.5%	1/16W	
R559	1-216-833-11	METAL CHIP	10K	5%	1/16W		R710	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R560	1-216-817-11	METAL CHIP	470	5%	1/16W		R711	1-211-969-11	METAL CHIP	10	0.5%	1/16W	
R561	1-216-816-11	METAL CHIP	390	5%	1/16W		R712	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R562	1-216-821-11	METAL CHIP	1K	5%	1/16W		R713	1-218-903-11	METAL CHIP	220K	0.5%	1/16W	
R563	1-216-817-11	METAL CHIP	470	5%	1/16W		R714	1-218-863-11	METAL CHIP	4.7K	0.5%	1/16W	
R564	1-216-797-11	METAL CHIP	10	5%	1/16W		R715	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R565	1-216-833-11	METAL CHIP	10K	5%	1/16W		R716	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R566	1-216-836-11	METAL CHIP	18K	5%	1/16W		R717	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R567	1-216-837-11	METAL CHIP	22K	5%	1/16W		R718	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R568	1-216-797-11	METAL CHIP	10	5%	1/16W		R719	1-216-864-11	METAL CHIP	0	5%	1/16W	
R569	1-216-821-11	METAL CHIP	1K	5%	1/16W		R720	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R570	1-216-797-11	METAL CHIP	10	5%	1/16W		R721	1-216-805-11	METAL CHIP	47	5%	1/16W	
R571	1-216-815-11	METAL CHIP	330	5%	1/16W		R722	1-216-805-11	METAL CHIP	47	5%	1/16W	
R572	1-216-821-11	METAL CHIP	1K	5%	1/16W		R723	1-216-805-11	METAL CHIP	47	5%	1/16W	
R573	1-216-821-11	METAL CHIP	1K	5%	1/16W		R724	1-216-809-11	METAL CHIP	100	5%	1/16W	
R574	1-216-809-11	METAL CHIP	100	5%	1/16W		R725	1-216-805-11	METAL CHIP	47	5%	1/16W	
R575	1-216-809-11	METAL CHIP	100	5%	1/16W		R726	1-216-805-11	METAL CHIP	47	5%	1/16W	
R576	1-216-809-11	METAL CHIP	100	5%	1/16W		R727	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R577	1-216-809-11	METAL CHIP	100	5%	1/16W		R728	1-216-805-11	METAL CHIP	47	5%	1/16W	
R578	1-216-841-11	METAL CHIP	47K	5%	1/16W		R729	1-216-805-11	METAL CHIP	47	5%	1/16W	
R579	1-216-841-11	METAL CHIP	47K	5%	1/16W		R730	1-216-864-11	METAL CHIP	0	5%	1/16W	
R580	1-216-821-11	METAL CHIP	1K	5%	1/16W		R731	1-216-805-11	METAL CHIP	47	5%	1/16W	
R581	1-216-845-11	METAL CHIP	100K	5%	1/16W		R732	1-216-805-11	METAL CHIP	47	5%	1/16W	
R601	1-216-833-11	METAL CHIP	10K	5%	1/16W		R733	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R602	1-216-864-11	METAL CHIP	0	5%	1/16W		R734	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R603	1-216-182-00	RES-CHIP	220	5%	1/8W		R735	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R604	1-216-845-11	METAL CHIP	100K	5%	1/16W		R736	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R605	1-216-829-11	METAL CHIP	4.7K	5%	1/16W		R737	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R606	1-216-833-11	METAL CHIP	10K	5%	1/16W		R738	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R607	1-216-182-00	RES-CHIP	220	5%	1/8W		R739	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R608	1-216-182-00	RES-CHIP	220	5%	1/8W		R740	1-216-809-11	METAL CHIP	100	5%	1/16W	
R609	1-216-829-11	METAL CHIP	4.7K	5%	1/16W		R741	1-216-809-11	METAL CHIP	100	5%	1/16W	
R610	1-216-853-11	METAL CHIP	470K	5%	1/16W		R742	1-216-809-11	METAL CHIP	100	5%	1/16W	
R611	1-216-182-00	RES-CHIP	220	5%	1/8W		R743	1-216-805-11	METAL CHIP	47	5%	1/16W	
R612	1-216-833-11	METAL CHIP	10K	5%	1/16W		R745	1-216-809-11	METAL CHIP	100	5%	1/16W	
R613	1-216-845-11	METAL CHIP	100K	5%	1/16W		R746	1-216-805-11	METAL CHIP	47	5%	1/16W	

Ref. No.	Part No.	Description			Remark
R747	1-216-805-11	METAL CHIP	47	5%	1/16W
R748	1-216-805-11	METAL CHIP	47	5%	1/16W
R749	1-216-857-11	METAL CHIP	1M	5%	1/16W
R750	1-218-887-11	METAL CHIP	47K	0.5%	1/16W
R753	1-216-845-11	METAL CHIP	100K	5%	1/16W
R757	1-216-845-11	METAL CHIP	100K	5%	1/16W
R759	1-216-809-11	METAL CHIP	100	5%	1/16W
R760	1-216-845-11	METAL CHIP	100K	5%	1/16W
R761	1-216-864-11	METAL CHIP	0	5%	1/16W
R762	1-216-845-11	METAL CHIP	100K	5%	1/16W
R763	1-216-857-11	METAL CHIP	1M	5%	1/16W
R764	1-216-864-11	METAL CHIP	0	5%	1/16W
R765	1-216-805-11	METAL CHIP	47	5%	1/16W
R766	1-218-903-11	METAL CHIP	220K	0.5%	1/16W
R767	1-216-805-11	METAL CHIP	47	5%	1/16W
R768	1-216-841-11	METAL CHIP	47K	5%	1/16W
R769	1-216-857-11	METAL CHIP	1M	5%	1/16W
R770	1-216-805-11	METAL CHIP	47	5%	1/16W
R771	1-216-841-11	METAL CHIP	47K	5%	1/16W
R772	1-216-845-11	METAL CHIP	100K	5%	1/16W
R773	1-216-864-11	METAL CHIP	0	5%	1/16W
R774	1-216-845-11	METAL CHIP	100K	5%	1/16W
R775	1-216-805-11	METAL CHIP	47	5%	1/16W
R776	1-216-809-11	METAL CHIP	100	5%	1/16W
R778	1-216-845-11	METAL CHIP	100K	5%	1/16W
R780	1-216-864-11	METAL CHIP	0	5%	1/16W
R781	1-216-845-11	METAL CHIP	100K	5%	1/16W
R783	1-216-864-11	METAL CHIP	0	5%	1/16W
R784	1-216-845-11	METAL CHIP	100K	5%	1/16W
R786	1-216-845-11	METAL CHIP	100K	5%	1/16W
R787	1-216-805-11	METAL CHIP	47	5%	1/16W
R788	1-216-864-11	METAL CHIP	0	5%	1/16W
R789	1-216-864-11	METAL CHIP	0	5%	1/16W
R790	1-216-845-11	METAL CHIP	100K	5%	1/16W
R792	1-216-845-11	METAL CHIP	100K	5%	1/16W
R793	1-216-845-11	METAL CHIP	100K	5%	1/16W
R794	1-216-845-11	METAL CHIP	100K	5%	1/16W
R795	1-216-845-11	METAL CHIP	100K	5%	1/16W
R796	1-216-845-11	METAL CHIP	100K	5%	1/16W
R797	1-216-809-11	METAL CHIP	100	5%	1/16W
R798	1-216-845-11	METAL CHIP	100K	5%	1/16W
R799	1-216-864-11	METAL CHIP	0	5%	1/16W
R801	1-216-805-11	METAL CHIP	47	5%	1/16W
R802	1-219-570-11	RES-CHIP	10M	5%	1/16W
R803	1-216-809-11	METAL CHIP	100	5%	1/16W
R804	1-216-797-11	METAL CHIP	10	5%	1/16W
R805	1-216-797-11	METAL CHIP	10	5%	1/16W
R806	1-216-797-11	METAL CHIP	10	5%	1/16W
< SWITCH >					
S701	1-771-847-21	SWITCH, TACTILE (RESET)			
< VIBRATOR >					
* X551	1-579-466-11	VIBRATOR, CRYSTAL (3.579545MHz)			
X701	1-767-450-11	VIBRATOR, CERAMIC (20MHz)			
X702	1-760-458-21	VIBRATOR, CRYSTAL (32.768kHz)			

Ref. No.	Part No.	Description	Remark		
	A-7074-638-A	JA-006 BOARD, COMPLETE			

		(Ref. No.: 10,000 Series)			
< CAPACITOR >					
C101	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C102	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
< CONNECTOR >					
CN101	1-774-287-11	CONNECTOR, FFC/FPC 22P			
* CN102	1-506-470-11	PIN, CONNECTOR 5P			
< DIODE >					
D101	8-719-062-16	DIODE	01ZA8.2 (TPL3)		
D102	8-719-062-16	DIODE	01ZA8.2 (TPL3)		
D103	8-719-062-16	DIODE	01ZA8.2 (TPL3)		
D104	8-719-062-16	DIODE	01ZA8.2 (TPL3)		
D105	8-719-062-16	DIODE	01ZA8.2 (TPL3)		
D106	8-719-062-16	DIODE	01ZA8.2 (TPL3)		
D107	8-719-062-16	DIODE	01ZA8.2 (TPL3)		
D108	8-719-062-16	DIODE	01ZA8.2 (TPL3)		
D109	8-719-062-16	DIODE	01ZA8.2 (TPL3)		
D110	8-719-062-16	DIODE	01ZA8.2 (TPL3)		
D111	8-719-062-16	DIODE	01ZA8.2 (TPL3)		
D112	8-719-062-16	DIODE	01ZA8.2 (TPL3)		
D113	8-719-062-16	DIODE	01ZA8.2 (TPL3)		
< FUSE >					
△ F101	1-533-922-21	FUSE, CHIP (1A/63V)			
△ F102	1-533-922-21	FUSE, CHIP (1A/63V)			
△ F103	1-533-922-21	FUSE, CHIP (1A/63V)			
< JACK >					
J101	1-785-535-11	JACK BLOCK, PIN			
		(S VIDEO, VIDEO, AUDIO INPUT/OUTPUT)			
J102	1-580-288-11	JACK, DC (POLARITY UNIFIED TYPE) (DC IN)			
< LINE FILTER >					
LF101	1-424-361-11	FILTER, LINE			
< RESISTOR >					
R101	1-216-811-11	METAL CHIP	150	5%	1/16W
R102	1-216-811-11	METAL CHIP	150	5%	1/16W
R103	1-216-811-11	METAL CHIP	150	5%	1/16W
R104	1-216-811-11	METAL CHIP	150	5%	1/16W
R105	1-216-811-11	METAL CHIP	150	5%	1/16W
R106	1-216-811-11	METAL CHIP	150	5%	1/16W
< SWITCH >					
S101	1-571-588-31	SWITCH, SLIDE (AUTO REPEAT)			
S102	1-571-588-31	SWITCH, SLIDE (NTSC/PAL)			

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
	A-7074-621-A	JC-20 BOARD, COMPLETE (SERVICE)				C1167	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
		*****				C1168	1-162-974-11	CERAMIC CHIP	0.01uF		50V
		(Ref. No.: 20,000 Series)				C1169	1-162-974-11	CERAMIC CHIP	0.01uF		50V
		< CAPACITOR >				C1170	1-162-974-11	CERAMIC CHIP	0.01uF		50V
						C1171	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1100	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C1172	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1101	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C1173	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1102	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C1174	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1104	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C1175	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1106	1-162-919-11	CERAMIC CHIP	22PF	5%	50V	C1176	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1107	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C1177	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1109	1-128-964-91	TANTAL. CHIP	100uF	20%	6.3V	C1178	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1110	1-128-964-91	TANTAL. CHIP	100uF	20%	6.3V	C1179	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1111	1-104-847-11	TANTAL. CHIP	22uF	20%	4V	C1181	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1112	1-104-847-11	TANTAL. CHIP	22uF	20%	4V	C1182	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1113	1-104-847-11	TANTAL. CHIP	22uF	20%	4V	C1183	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1114	1-135-177-21	TANTALUM CHIP	1uF	20%	20V	C1184	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C1115	1-135-177-21	TANTALUM CHIP	1uF	20%	20V	C1185	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1116	1-135-177-21	TANTALUM CHIP	1uF	20%	20V	C1186	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1117	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C1187	1-128-964-91	TANTAL. CHIP	100uF	20%	6.3V
C1118	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C1188	1-128-964-91	TANTAL. CHIP	100uF	20%	6.3V
C1119	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C1189	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1123	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V	C1190	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C1124	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C1191	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1125	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C1192	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C1126	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C1194	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C1127	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C1195	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C1128	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C1196	1-164-174-11	CERAMIC CHIP	0.0082uF	10%	25V
C1129	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C1197	1-115-156-11	CERAMIC CHIP	1uF		10V
C1130	1-128-964-91	TANTAL. CHIP	100uF	20%	6.3V	C2200	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C1131	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V	C2201	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1132	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V	C2202	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C1133	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V	C2203	1-164-392-11	CERAMIC CHIP	390PF	5%	50V
C1134	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C2204	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1135	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C2205	1-164-357-11	CERAMIC CHIP	0.001uF	5%	50V
C1136	1-128-964-91	TANTAL. CHIP	100uF	20%	6.3V	C2206	1-110-569-11	TANTAL. CHIP	47uF	20%	4V
C1137	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C2207	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1138	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C2208	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1139	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C2209	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1140	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C2210	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1141	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C2211	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1142	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C2212	1-164-357-11	CERAMIC CHIP	0.001uF	5%	50V
C1143	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C2213	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C1144	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C2214	1-164-357-11	CERAMIC CHIP	0.001uF	5%	50V
C1145	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C2215	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1146	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C2216	1-135-177-21	TANTALUM CHIP	1uF	20%	20V
C1147	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C2217	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1148	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C2218	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C1149	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C2219	1-135-177-21	TANTALUM CHIP	1uF	20%	20V
C1150	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C2220	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C1151	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C2222	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C1152	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C2224	1-104-912-11	TANTAL. CHIP	3.3uF	20%	16V
C1154	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C2226	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C1156	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C2227	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V
C1158	1-162-974-11	CERAMIC CHIP	0.01uF		50V	C2228	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C1162	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C2233	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1163	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C2235	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1164	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C2236	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C1165	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C2238	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1166	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C2239	1-115-156-11	CERAMIC CHIP	1uF		10V

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C2240	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C6010	1-162-919-11	CERAMIC CHIP	22PF 5% 50V
C2241	1-115-156-11	CERAMIC CHIP	1uF 10V	C6011	1-162-917-11	CERAMIC CHIP	15PF 5% 50V
C2242	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C6012	1-164-156-11	CERAMIC CHIP	0.1uF 25V
C2244	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C7001	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C2245	1-162-960-11	CERAMIC CHIP	220PF 10% 50V	C7002	1-162-923-11	CERAMIC CHIP	47PF 5% 50V
C2246	1-162-961-11	CERAMIC CHIP	330PF 10% 50V	C7003	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C3300	1-104-852-11	TANTAL. CHIP	22uF 20% 6.3V	C7004	1-162-923-11	CERAMIC CHIP	47PF 5% 50V
C3301	1-162-974-11	CERAMIC CHIP	0.01uF 50V	C7005	1-162-923-11	CERAMIC CHIP	47PF 5% 50V
C3302	1-104-852-11	TANTAL. CHIP	22uF 20% 6.3V	C7006	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C3303	1-162-974-11	CERAMIC CHIP	0.01uF 50V	C7007	1-162-923-11	CERAMIC CHIP	47PF 5% 50V
C3304	1-162-974-11	CERAMIC CHIP	0.01uF 50V	C7008	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C3305	1-104-852-11	TANTAL. CHIP	22uF 20% 6.3V	C7009	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C3306	1-162-974-11	CERAMIC CHIP	0.01uF 50V	C7010	1-113-503-11	CERAMIC CHIP	0.0039uF 5% 25V
C3307	1-104-851-11	TANTAL. CHIP	10uF 20% 10V	C7011	1-162-923-11	CERAMIC CHIP	47PF 5% 50V
C3308	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C7012	1-162-923-11	CERAMIC CHIP	47PF 5% 50V
C3309	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V	C7013	1-113-503-11	CERAMIC CHIP	0.0039uF 5% 25V
C3310	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C7014	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C3312	1-162-910-11	CERAMIC CHIP	5PF 0.25PF 50V	C7015	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C3313	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C7016	1-135-210-11	TANTALUM CHIP	4.7uF 20% 10V
C3314	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C7017	1-135-210-11	TANTALUM CHIP	4.7uF 20% 10V
C4400	1-135-149-21	TANTALUM CHIP	2.2uF 20% 10V	C7018	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C4401	1-165-176-11	CERAMIC CHIP	0.047uF 10% 16V	C7019	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C4402	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V	C7020	1-163-009-11	CERAMIC CHIP	0.001uF 10% 50V
C4403	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V	C7021	1-163-009-11	CERAMIC CHIP	0.001uF 10% 50V
C4404	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C7022	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C4405	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V	C7023	1-135-210-11	TANTALUM CHIP	4.7uF 20% 10V
C4406	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V	C7024	1-135-210-11	TANTALUM CHIP	4.7uF 20% 10V
C4407	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V	C7025	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C4408	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V	C7026	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C4410	1-162-915-11	CERAMIC CHIP	10PF 0.5PF 50V	C7027	1-104-847-11	TANTAL. CHIP	22uF 20% 4V
C4411	1-162-915-11	CERAMIC CHIP	10PF 0.5PF 50V	C7028	1-104-847-11	TANTAL. CHIP	22uF 20% 4V
C4412	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C7029	1-162-965-11	CERAMIC CHIP	0.0015uF 10% 50V
C4413	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C7030	1-162-965-11	CERAMIC CHIP	0.0015uF 10% 50V
C4414	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V	C7031	1-164-816-11	CERAMIC CHIP	220PF 2% 50V
C4415	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C7032	1-164-816-11	CERAMIC CHIP	220PF 2% 50V
C4416	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C7033	1-162-974-11	CERAMIC CHIP	0.01uF 50V
C4418	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V	C7100	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V
C4420	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	< CONNECTOR >			
C4421	1-109-982-11	CERAMIC CHIP	1uF 10% 10V	CN1100	1-506-474-11	PIN, CONNECTOR 9P	
C4422	1-164-816-11	CERAMIC CHIP	220PF 2% 50V	CN1101	1-774-770-11	CONNECTOR, FFC/FPC 30P	
C5002	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	* CN4400	1-564-005-11	PIN, CONNECTOR 6P	
C5003	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	CN4401	1-691-386-11	CONNECTOR, FFC/FPC 22P	
C5004	1-104-851-11	TANTAL. CHIP	10uF 20% 10V	CN4402	1-691-386-11	CONNECTOR, FFC/FPC 22P	
C5005	1-113-994-11	TANTAL. CHIP	6.8uF 20% 16V	CN5005	1-778-637-21	CONNECTOR, FFC/FPC (ZIF) 50P	
C5006	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	CN6001	1-774-770-11	CONNECTOR, FFC/FPC 30P	
C5007	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V	CN6002	1-750-303-41	CONNECTOR, BOARD TO BOARD 20P	
C5008	1-162-915-11	CERAMIC CHIP	10PF 0.5PF 50V	* CN7001	1-691-591-11	PIN, CONNECTOR (1.5mm) (SMD) 8P	
C5009	1-162-915-11	CERAMIC CHIP	10PF 0.5PF 50V	< TRIMMER >			
C5011	1-109-982-11	CERAMIC CHIP	1uF 10% 10V	CT2200	1-141-423-61	CAP, ADJ 20PF (AFC)	
C5012	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	CT3300	1-141-422-11	CAP, ADJ 10PF (VFD SPCK)	
C5013	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	< DIODE >			
C5014	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	D2201	8-719-041-39	DIODE KV1470TL00	
C5015	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	D4400	8-719-055-86	DIODE KV1470TL1-3	
C5016	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	D5001	8-719-421-67	DIODE MA132WK-TX	
C6004	1-164-360-11	CERAMIC CHIP	0.1uF 16V	< FILTER >			
C6005	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	FL1101	1-233-345-21	FILTER, LOW PASS (5.5MHz)	
C6006	1-135-259-11	TANTAL. CHIP	10uF 20% 6.3V				
C6007	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V				
C6008	1-164-227-11	CERAMIC CHIP	0.022uF 10% 25V				
C6009	1-164-156-11	CERAMIC CHIP	0.1uF 25V				

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
FL1102	1-233-345-21	FILTER, LOW PASS (5.5MHz)		JS7005	1-216-864-11	METAL CHIP	0 5% 1/16W
		< IC >		JS7006	1-216-864-11	METAL CHIP	0 5% 1/16W
IC1100	8-759-477-81	IC TK11220BMCL		JS7007	1-216-864-11	METAL CHIP	0 5% 1/16W
IC1101	8-759-523-03	IC TC74HC4066AFT (EL)		JS7008	1-216-864-11	METAL CHIP	0 5% 1/16W
IC1102	8-759-338-78	IC BA10324AFV-E2		JS7009	1-216-864-11	METAL CHIP	0 5% 1/16W
IC1103	8-759-338-78	IC BA10324AFV-E2		JS7010	1-216-864-11	METAL CHIP	0 5% 1/16W
IC1104	8-759-338-78	IC BA10324AFV-E2				< COIL >	
IC1105	8-759-510-71	IC BA10358F-E2		L1000	1-414-760-21	FERRITE	0uH
IC1106	8-759-338-78	IC BA10324AFV-E2		L1001	1-414-760-21	FERRITE	0uH
IC1107	8-759-359-51	IC NJM431M (TE2)		L1100	1-414-760-21	FERRITE	0uH
IC1108	8-752-352-09	IC CXD2300Q-T4		L1101	1-414-760-21	FERRITE	0uH
IC1109	8-752-352-09	IC CXD2300Q-T4		L1102	1-414-760-21	FERRITE	0uH
IC1110	8-752-352-09	IC CXD2300Q-T4		L1104	1-414-760-21	FERRITE	0uH
IC1111	8-759-449-58	IC LM7131BCM5X		L1105	1-414-760-21	FERRITE	0uH
IC1112	8-759-449-58	IC LM7131BCM5X		L1107	1-414-760-21	FERRITE	0uH
IC1113	8-759-157-22	IC PQ05TZ1U		L1108	1-414-398-11	INDUCTOR	10uH
IC2200	8-759-368-81	IC TK11630UTL		L1109	1-414-398-11	INDUCTOR	10uH
IC2202	8-759-485-79	IC TC7SET08FU (TE85R)		L1110	1-414-398-11	INDUCTOR	10uH
IC2203	8-759-523-97	IC TC74VHC123AFT (EL)		L1111	1-414-398-11	INDUCTOR	10uH
IC2204	8-759-343-09	IC CXD2193AR-ER		L1112	1-414-398-11	INDUCTOR	10uH
IC2208	8-759-196-93	IC TC7SH00FU-TE85R		L1113	1-414-398-11	INDUCTOR	10uH
IC2209	8-759-524-27	IC TC74VHC244FT (EL)		L1114	1-414-398-11	INDUCTOR	10uH
IC2210	8-759-271-86	IC TC7SH04FU-TE85R		L1115	1-414-398-11	INDUCTOR	10uH
IC2211	8-759-196-96	IC TC7SH08FU-TE85R		L1116	1-414-398-11	INDUCTOR	10uH
IC2212	8-759-196-93	IC TC7SH00FU-TE85R		L1117	1-414-760-21	FERRITE	0uH
IC2213	8-759-447-77	IC TC7WH74FU (TE12R)		L1118	1-414-760-21	FERRITE	0uH
IC2214	8-759-524-41	IC TC74VHC374FT (EL)		L1119	1-414-760-21	FERRITE	0uH
IC2215	8-759-524-50	IC TC74VHC541FT (EL)		L1120	1-414-760-21	FERRITE	0uH
IC3300	8-759-570-60	IC M65511FP-R60S		L1121	1-414-760-21	FERRITE	0uH
IC3301	8-759-058-60	IC TC7SU04FU (TE85R)		L1122	1-414-760-21	FERRITE	0uH
IC3302	8-759-531-92	IC TC7WH04FU (TE12R)		L2200	1-410-390-11	INDUCTOR CHIP	56uH
IC3303	8-759-579-96	IC MB90097PFV-G-120-BND-ER		L2201	1-410-655-31	INDUCTOR CHIP	120uH
IC4400	8-759-570-61	IC HG73C050TETL		L2202	1-414-398-11	INDUCTOR	10uH
IC4401	8-752-390-00	IC CXD3129R-T6		L2203	1-414-398-11	INDUCTOR	10uH
IC4402	8-759-566-52	IC SN104266PN-TEB		L2204	1-411-275-21	COIL, VARIABLE	
IC5001	8-759-512-69	IC S-81350HG-KD-T1		L2205	1-414-398-11	INDUCTOR	10uH
IC5002	8-759-427-85	IC MB88146APFV-G-BND-ER		L3300	1-414-398-11	INDUCTOR	10uH
IC5003	8-759-693-43	IC MB91192PFF-G-119-BND-ER		L3301	1-414-398-11	INDUCTOR	10uH
IC5006	8-759-445-94	IC AK6480AM-E2		L3302	1-414-398-11	INDUCTOR	10uH
IC5007	8-759-443-08	IC TC7W241FU-TE12R		L3303	1-414-398-11	INDUCTOR	10uH
IC5008	8-759-523-81	IC TC74VHC08FT (EL)		L4400	1-414-398-11	INDUCTOR	10uH
IC6001	8-759-694-97	IC S579636PZ-TEB		L4401	1-414-398-11	INDUCTOR	10uH
IC6003	8-759-475-45	IC TC74LCX157FT (EL)		L4402	1-414-398-11	INDUCTOR	10uH
IC6004	8-759-058-58	IC TC7S04FU (TE85R)		L4403	1-410-371-41	INDUCTOR	1.5uH
IC7001	8-759-358-47	IC NJM2115V (TE2)		L4404	1-414-754-11	INDUCTOR	10uH
IC7002	8-759-358-47	IC NJM2115V (TE2)		L5001	1-414-754-11	INDUCTOR	10uH
IC7003	8-759-358-47	IC NJM2115V (TE2)		L5002	1-414-751-11	INDUCTOR	1uH
IC7004	8-759-523-02	IC TC74HC4053AFT (EL)		L6001	1-414-754-11	INDUCTOR	10uH
IC7005	8-759-358-47	IC NJM2115V (TE2)		L6003	1-414-751-11	INDUCTOR	1uH
IC7006	8-759-471-38	IC AK4520A-VF-E2		L6007	1-414-760-21	FERRITE	0uH
IC7007	8-759-643-82	IC HD6433837TC77X		L6010	1-414-760-21	FERRITE	0uH
IC7008	8-759-058-58	IC TC7S04FU (TE85R)		L6011	1-414-760-21	FERRITE	0uH
IC7009	8-759-358-47	IC NJM2115V (TE2)		L6012	1-414-760-21	FERRITE	0uH
		< JUMPER RESISTOR >		L6014	1-414-760-21	FERRITE	0uH
JS7001	1-216-864-11	METAL CHIP	0 5% 1/16W			< TRANSISTOR >	
JS7002	1-216-864-11	METAL CHIP	0 5% 1/16W	Q1101	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
JS7003	1-216-864-11	METAL CHIP	0 5% 1/16W	Q1104	8-729-905-35	TRANSISTOR	2SC4081T106R
JS7004	1-216-864-11	METAL CHIP	0 5% 1/16W	Q1116	8-729-402-42	TRANSISTOR	UN5213-TX

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
Q1117	8-729-905-35	TRANSISTOR	2SC4081T106R			R1173	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
Q1118	8-729-905-35	TRANSISTOR	2SC4081T106R			R1175	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
Q1119	8-729-905-35	TRANSISTOR	2SC4081T106R			R1176	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
Q1120	8-729-202-38	TRANSISTOR	2SC3326N-TE85L-B			R1177	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
Q1121	8-729-202-38	TRANSISTOR	2SC3326N-TE85L-B			R1178	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
Q1122	8-729-202-38	TRANSISTOR	2SC3326N-TE85L-B								
Q1123	8-729-026-52	TRANSISTOR	2SA1576A-T106-R			R1179	1-216-821-11	METAL CHIP	1K	5%	1/16W
Q1124	8-729-026-52	TRANSISTOR	2SA1576A-T106-R			R1180	1-216-833-11	METAL CHIP	10K	5%	1/16W
Q1125	8-729-026-52	TRANSISTOR	2SA1576A-T106-R			R1181	1-216-833-11	METAL CHIP	10K	5%	1/16W
Q1126	8-729-905-35	TRANSISTOR	2SC4081T106R			R1182	1-216-821-11	METAL CHIP	1K	5%	1/16W
Q1127	8-729-905-35	TRANSISTOR	2SC4081T106R			R1183	1-216-821-11	METAL CHIP	1K	5%	1/16W
Q1128	8-729-905-35	TRANSISTOR	2SC4081T106R								
Q1129	8-729-905-35	TRANSISTOR	2SC4081T106R			R1184	1-216-821-11	METAL CHIP	1K	5%	1/16W
Q1130	8-729-905-35	TRANSISTOR	2SC4081T106R			R1185	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
Q1131	8-729-046-75	TRANSISTOR	SI2301DS-T1			R1186	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
Q1132	8-729-905-35	TRANSISTOR	2SC4081T106R			R1187	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
Q2200	8-729-905-35	TRANSISTOR	2SC4081T106R			R1188	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
Q2201	8-729-026-52	TRANSISTOR	2SA1576A-T106-R								
Q2202	8-729-427-74	TRANSISTOR	XP4601-TXE			R1190	1-216-835-11	METAL CHIP	15K	5%	1/16W
Q2203	8-729-402-42	TRANSISTOR	UN5213-TX			R1191	1-216-809-11	METAL CHIP	100	5%	1/16W
Q5001	8-729-141-48	TRANSISTOR	2SB624-T1BV4			R1192	1-216-809-11	METAL CHIP	100	5%	1/16W
Q5002	8-729-402-42	TRANSISTOR	UN5213-TX			R1193	1-216-809-11	METAL CHIP	100	5%	1/16W
Q6003	8-729-037-61	TRANSISTOR	UN9113J- (K8) .SO			R1194	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
Q6004	8-729-427-70	TRANSISTOR	XP4401-TXE								
Q6005	8-729-141-48	TRANSISTOR	2SB624-T1BV4			R1196	1-216-835-11	METAL CHIP	15K	5%	1/16W
Q6011	8-729-402-42	TRANSISTOR	UN5213-TX			R1197	1-216-864-11	METAL CHIP	0	5%	1/16W
Q6012	8-729-402-42	TRANSISTOR	UN5213-TX			R1198	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
Q7001	8-729-905-35	TRANSISTOR	2SC4081T106R			R1199	1-216-835-11	METAL CHIP	15K	5%	1/16W
< RESISTOR >						R1200	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R1016	1-216-864-11	METAL CHIP	0	5%	1/16W	R1201	1-216-805-11	METAL CHIP	47	5%	1/16W
R1017	1-216-864-11	METAL CHIP	0	5%	1/16W	R1202	1-216-816-11	METAL CHIP	390	5%	1/16W
R1018	1-216-864-11	METAL CHIP	0	5%	1/16W	R1203	1-216-864-11	METAL CHIP	0	5%	1/16W
R1111	1-216-813-11	METAL CHIP	220	5%	1/16W	R1204	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R1112	1-216-821-11	METAL CHIP	1K	5%	1/16W	R1205	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1114	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R1206	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1117	1-216-821-11	METAL CHIP	1K	5%	1/16W	R1207	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R1118	1-216-821-11	METAL CHIP	1K	5%	1/16W	R1208	1-216-864-11	METAL CHIP	0	5%	1/16W
R1120	1-216-817-11	METAL CHIP	470	5%	1/16W	R1209	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1123	1-216-821-11	METAL CHIP	1K	5%	1/16W	R1210	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1125	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R1211	1-216-864-11	METAL CHIP	0	5%	1/16W
R1150	1-216-837-11	METAL CHIP	22K	5%	1/16W	R1212	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R1151	1-216-837-11	METAL CHIP	22K	5%	1/16W	R1213	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1152	1-216-837-11	METAL CHIP	22K	5%	1/16W	R1214	1-216-817-11	METAL CHIP	470	5%	1/16W
R1153	1-216-821-11	METAL CHIP	1K	5%	1/16W	R1215	1-216-864-11	METAL CHIP	0	5%	1/16W
R1154	1-216-821-11	METAL CHIP	1K	5%	1/16W	R1216	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1155	1-216-821-11	METAL CHIP	1K	5%	1/16W	R1217	1-216-817-11	METAL CHIP	470	5%	1/16W
R1156	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R1218	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R1158	1-216-864-11	METAL CHIP	0	5%	1/16W	R1219	1-216-864-11	METAL CHIP	0	5%	1/16W
R1159	1-216-864-11	METAL CHIP	0	5%	1/16W	R1222	1-216-808-11	METAL CHIP	82	5%	1/16W
R1160	1-216-864-11	METAL CHIP	0	5%	1/16W	R1223	1-216-808-11	METAL CHIP	82	5%	1/16W
R1164	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R1229	1-216-864-11	METAL CHIP	0	5%	1/16W
R1165	1-216-833-11	METAL CHIP	10K	5%	1/16W	R1230	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1166	1-216-833-11	METAL CHIP	10K	5%	1/16W	R1231	1-216-849-11	METAL CHIP	220K	5%	1/16W
R1167	1-216-809-11	METAL CHIP	100	5%	1/16W	R1232	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1168	1-216-809-11	METAL CHIP	100	5%	1/16W	R1233	1-216-835-11	METAL CHIP	15K	5%	1/16W
R1169	1-216-809-11	METAL CHIP	100	5%	1/16W	R1235	1-216-295-11	SHORT	0		
R1170	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R1237	1-216-295-11	SHORT	0		
R1171	1-216-821-11	METAL CHIP	1K	5%	1/16W	R2200	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1172	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R2201	1-216-840-11	METAL CHIP	39K	5%	1/16W
						R2202	1-216-864-11	METAL CHIP	0	5%	1/16W
						R2203	1-216-821-11	METAL CHIP	1K	5%	1/16W
						R2204	1-216-817-11	METAL CHIP	470	5%	1/16W
						R2205	1-216-817-11	METAL CHIP	470	5%	1/16W
						R2206	1-216-821-11	METAL CHIP	1K	5%	1/16W

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
R2207	1-216-864-11	METAL CHIP	0	5%	1/16W	R3323	1-216-864-11	METAL CHIP	0	5%	1/16W
R2210	1-216-864-11	METAL CHIP	0	5%	1/16W	R3324	1-216-864-11	METAL CHIP	0	5%	1/16W
R2213	1-218-863-11	METAL CHIP	4.7K	0.5%	1/16W	R4400	1-216-805-11	METAL CHIP	47	5%	1/16W
R2215	1-216-833-11	METAL CHIP	10K	5%	1/16W	R4401	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2217	1-216-864-11	METAL CHIP	0	5%	1/16W	R4402	1-216-815-11	METAL CHIP	330	5%	1/16W
R2218	1-218-831-11	METAL CHIP	220	0.5%	1/16W	R4403	1-216-833-11	METAL CHIP	10K	5%	1/16W
R2219	1-218-831-11	METAL CHIP	220	0.5%	1/16W	R4404	1-216-833-11	METAL CHIP	10K	5%	1/16W
R2220	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	R4405	1-216-864-11	METAL CHIP	0	5%	1/16W
R2221	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R4406	1-216-864-11	METAL CHIP	0	5%	1/16W
R2222	1-216-814-11	METAL CHIP	270	5%	1/16W	R4407	1-216-864-11	METAL CHIP	0	5%	1/16W
R2223	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R4408	1-216-864-11	METAL CHIP	0	5%	1/16W
R2224	1-218-851-11	METAL CHIP	1.5K	0.5%	1/16W	R4409	1-216-864-11	METAL CHIP	0	5%	1/16W
R2225	1-218-831-11	METAL CHIP	220	0.5%	1/16W	R4411	1-216-864-11	METAL CHIP	0	5%	1/16W
R2226	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R4412	1-216-864-11	METAL CHIP	0	5%	1/16W
R2227	1-216-814-11	METAL CHIP	270	5%	1/16W	R4413	1-216-864-11	METAL CHIP	0	5%	1/16W
R2228	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R4415	1-216-864-11	METAL CHIP	0	5%	1/16W
R2229	1-216-864-11	METAL CHIP	0	5%	1/16W	R4416	1-216-864-11	METAL CHIP	0	5%	1/16W
R2230	1-216-855-11	METAL CHIP	680K	5%	1/16W	R4420	1-216-864-11	METAL CHIP	0	5%	1/16W
R2233	1-216-839-11	METAL CHIP	33K	5%	1/16W	R4423	1-216-864-11	METAL CHIP	0	5%	1/16W
R2234	1-216-864-11	METAL CHIP	0	5%	1/16W	R4424	1-216-864-11	METAL CHIP	0	5%	1/16W
R2235	1-216-839-11	METAL CHIP	33K	5%	1/16W	R4425	1-216-864-11	METAL CHIP	0	5%	1/16W
R2236	1-216-864-11	METAL CHIP	0	5%	1/16W	R4431	1-216-834-11	METAL CHIP	12K	5%	1/16W
R2237	1-216-839-11	METAL CHIP	33K	5%	1/16W	R4432	1-216-864-11	METAL CHIP	0	5%	1/16W
R2238	1-216-833-11	METAL CHIP	10K	5%	1/16W	R4434	1-216-834-11	METAL CHIP	12K	5%	1/16W
R2239	1-216-821-11	METAL CHIP	1K	5%	1/16W	R4435	1-216-864-11	METAL CHIP	0	5%	1/16W
R2240	1-216-839-11	METAL CHIP	33K	5%	1/16W	R4437	1-211-987-11	METAL CHIP	56	0.5%	1/16W
R2246	1-216-864-11	METAL CHIP	0	5%	1/16W	R4438	1-211-987-11	METAL CHIP	56	0.5%	1/16W
R2247	1-216-833-11	METAL CHIP	10K	5%	1/16W	R4439	1-218-871-11	METAL CHIP	10K	0.5%	1/16W
R2250	1-216-833-11	METAL CHIP	10K	5%	1/16W	R4440	1-211-987-11	METAL CHIP	56	0.5%	1/16W
R2252	1-216-864-11	METAL CHIP	0	5%	1/16W	R4441	1-218-871-11	METAL CHIP	10K	0.5%	1/16W
R2253	1-216-864-11	METAL CHIP	0	5%	1/16W	R4442	1-211-987-11	METAL CHIP	56	0.5%	1/16W
R2255	1-216-864-11	METAL CHIP	0	5%	1/16W	R4443	1-216-805-11	METAL CHIP	47	5%	1/16W
R2256	1-216-864-11	METAL CHIP	0	5%	1/16W	R4444	1-216-864-11	METAL CHIP	0	5%	1/16W
R2257	1-216-864-11	METAL CHIP	0	5%	1/16W	R4445	1-216-864-11	METAL CHIP	0	5%	1/16W
R2258	1-216-864-11	METAL CHIP	0	5%	1/16W	R4446	1-216-864-11	METAL CHIP	0	5%	1/16W
R2259	1-216-864-11	METAL CHIP	0	5%	1/16W	R4447	1-216-864-11	METAL CHIP	0	5%	1/16W
R2261	1-216-844-11	METAL CHIP	82K	5%	1/16W	R5003	1-216-837-11	METAL CHIP	22K	5%	1/16W
R2262	1-216-844-11	METAL CHIP	82K	5%	1/16W	R5004	1-216-821-11	METAL CHIP	1K	5%	1/16W
R2263	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R5005	1-216-809-11	METAL CHIP	100	5%	1/16W
R2264	1-216-833-11	METAL CHIP	10K	5%	1/16W	R5008	1-216-809-11	METAL CHIP	100	5%	1/16W
R2265	1-216-833-11	METAL CHIP	10K	5%	1/16W	R5009	1-216-833-11	METAL CHIP	10K	5%	1/16W
R2266	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R5013	1-216-809-11	METAL CHIP	100	5%	1/16W
R2267	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R5014	1-216-809-11	METAL CHIP	100	5%	1/16W
R2268	1-216-864-11	METAL CHIP	0	5%	1/16W	R5015	1-216-809-11	METAL CHIP	100	5%	1/16W
R2269	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R5018	1-216-845-11	METAL CHIP	100K	5%	1/16W
R2270	1-216-864-11	METAL CHIP	0	5%	1/16W	R5019	1-216-845-11	METAL CHIP	100K	5%	1/16W
R3300	1-216-864-11	METAL CHIP	0	5%	1/16W	R5020	1-216-853-11	METAL CHIP	470K	5%	1/16W
R3301	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	R5025	1-216-833-11	METAL CHIP	10K	5%	1/16W
R3303	1-216-864-11	METAL CHIP	0	5%	1/16W	R5026	1-216-821-11	METAL CHIP	1K	5%	1/16W
R3304	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	R5028	1-216-841-11	METAL CHIP	47K	5%	1/16W
R3306	1-216-864-11	METAL CHIP	0	5%	1/16W	R5029	1-216-841-11	METAL CHIP	47K	5%	1/16W
R3307	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	R5030	1-216-841-11	METAL CHIP	47K	5%	1/16W
R3311	1-216-864-11	METAL CHIP	0	5%	1/16W	R5031	1-216-841-11	METAL CHIP	47K	5%	1/16W
R3313	1-216-864-11	METAL CHIP	0	5%	1/16W	R5032	1-216-821-11	METAL CHIP	1K	5%	1/16W
R3317	1-216-857-11	METAL CHIP	1M	5%	1/16W	R5033	1-216-821-11	METAL CHIP	1K	5%	1/16W
R3318	1-218-840-11	METAL CHIP	510	0.5%	1/16W	R5034	1-216-821-11	METAL CHIP	1K	5%	1/16W
R3319	1-216-815-11	METAL CHIP	330	5%	1/16W	R5035	1-216-821-11	METAL CHIP	1K	5%	1/16W
R3320	1-216-864-11	METAL CHIP	0	5%	1/16W	R5037	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R3321	1-216-864-11	METAL CHIP	0	5%	1/16W	R5038	1-216-845-11	METAL CHIP	100K	5%	1/16W
R3322	1-216-864-11	METAL CHIP	0	5%	1/16W	R5039	1-218-887-11	METAL CHIP	47K	0.5%	1/16W

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
R5040	1-216-845-11	METAL CHIP	100K	5%	1/16W	R6049	1-219-570-11	RES-CHIP	10M	5%	1/16W
R5041	1-218-903-11	METAL CHIP	220K	0.5%	1/16W	R6050	1-216-853-11	METAL CHIP	470K	5%	1/16W
R5042	1-216-845-11	METAL CHIP	100K	5%	1/16W	R6052	1-216-853-11	METAL CHIP	470K	5%	1/16W
R5043	1-216-845-11	METAL CHIP	100K	5%	1/16W						
R5044	1-216-853-11	METAL CHIP	470K	5%	1/16W	R6053	1-216-821-11	METAL CHIP	1K	5%	1/16W
						R6054	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5045	1-216-845-11	METAL CHIP	100K	5%	1/16W	R6055	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5046	1-216-845-11	METAL CHIP	100K	5%	1/16W	R6056	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5047	1-216-845-11	METAL CHIP	100K	5%	1/16W	R6057	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R5048	1-216-833-11	METAL CHIP	10K	5%	1/16W						
R5049	1-216-845-11	METAL CHIP	100K	5%	1/16W	R6058	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
						R6059	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R5050	1-216-845-11	METAL CHIP	100K	5%	1/16W	R6060	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R5051	1-216-845-11	METAL CHIP	100K	5%	1/16W	R6061	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R5052	1-216-845-11	METAL CHIP	100K	5%	1/16W	R6062	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R5053	1-216-845-11	METAL CHIP	100K	5%	1/16W						
R5055	1-216-821-11	METAL CHIP	1K	5%	1/16W	R6063	1-216-791-11	METAL CHIP	3.3	5%	1/16W
						R6064	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R5057	1-216-821-11	METAL CHIP	1K	5%	1/16W	R6065	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5058	1-216-821-11	METAL CHIP	1K	5%	1/16W	R6066	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5059	1-216-821-11	METAL CHIP	1K	5%	1/16W	R6067	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5060	1-216-845-11	METAL CHIP	100K	5%	1/16W						
R5061	1-216-821-11	METAL CHIP	1K	5%	1/16W	R6068	1-216-821-11	METAL CHIP	1K	5%	1/16W
						R6072	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5062	1-216-821-11	METAL CHIP	1K	5%	1/16W	R6073	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5063	1-216-821-11	METAL CHIP	1K	5%	1/16W	R6074	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5064	1-216-821-11	METAL CHIP	1K	5%	1/16W	R6075	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5065	1-216-821-11	METAL CHIP	1K	5%	1/16W						
R5066	1-216-845-11	METAL CHIP	100K	5%	1/16W	R6076	1-216-821-11	METAL CHIP	1K	5%	1/16W
						R6077	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5067	1-216-809-11	METAL CHIP	100	5%	1/16W	R6078	1-216-853-11	METAL CHIP	470K	5%	1/16W
R5068	1-216-821-11	METAL CHIP	1K	5%	1/16W	R6079	1-216-833-11	METAL CHIP	10K	5%	1/16W
R5069	1-216-845-11	METAL CHIP	100K	5%	1/16W	R6080	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5070	1-216-845-11	METAL CHIP	100K	5%	1/16W						
R6009	1-216-853-11	METAL CHIP	470K	5%	1/16W	R6081	1-216-821-11	METAL CHIP	1K	5%	1/16W
						R6082	1-216-809-11	METAL CHIP	100	5%	1/16W
R6011	1-216-833-11	METAL CHIP	10K	5%	1/16W	R6083	1-216-809-11	METAL CHIP	100	5%	1/16W
R6013	1-216-853-11	METAL CHIP	470K	5%	1/16W	R6084	1-216-809-11	METAL CHIP	100	5%	1/16W
R6016	1-216-833-11	METAL CHIP	10K	5%	1/16W	R6085	1-216-809-11	METAL CHIP	100	5%	1/16W
R6017	1-216-809-11	METAL CHIP	100	5%	1/16W						
R6018	1-216-821-11	METAL CHIP	1K	5%	1/16W	R6086	1-216-864-11	METAL CHIP	0	5%	1/16W
						R6087	1-216-864-11	METAL CHIP	0	5%	1/16W
R6019	1-216-809-11	METAL CHIP	100	5%	1/16W	R6088	1-216-864-11	METAL CHIP	0	5%	1/16W
R6020	1-216-809-11	METAL CHIP	100	5%	1/16W	R6089	1-216-864-11	METAL CHIP	0	5%	1/16W
R6022	1-216-821-11	METAL CHIP	1K	5%	1/16W	R6090	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6025	1-216-845-11	METAL CHIP	100K	5%	1/16W						
R6026	1-216-833-11	METAL CHIP	10K	5%	1/16W	R6091	1-216-821-11	METAL CHIP	1K	5%	1/16W
						R6092	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6027	1-216-821-11	METAL CHIP	1K	5%	1/16W	R6093	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6030	1-216-833-11	METAL CHIP	10K	5%	1/16W	R6094	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6032	1-216-833-11	METAL CHIP	10K	5%	1/16W	R6095	1-216-845-11	METAL CHIP	100K	5%	1/16W
R6033	1-216-845-11	METAL CHIP	100K	5%	1/16W						
R6034	1-216-845-11	METAL CHIP	100K	5%	1/16W	R6096	1-216-845-11	METAL CHIP	100K	5%	1/16W
						R6097	1-216-845-11	METAL CHIP	100K	5%	1/16W
R6035	1-216-845-11	METAL CHIP	100K	5%	1/16W	R7009	1-414-760-21	FERRITE	0uH (Note)		
R6036	1-216-845-11	METAL CHIP	100K	5%	1/16W	R7010	1-414-760-21	FERRITE	0uH (Note)		
R6037	1-216-821-11	METAL CHIP	1K	5%	1/16W	R7011	1-216-864-11	METAL CHIP	0	5%	1/16W
R6038	1-216-809-11	METAL CHIP	100	5%	1/16W						
R6039	1-216-821-11	METAL CHIP	1K	5%	1/16W	R7012	1-216-864-11	METAL CHIP	0	5%	1/16W
						R7013	1-414-760-21	FERRITE	0uH (Note)		
R6040	1-216-841-11	METAL CHIP	47K	5%	1/16W	R7014	1-216-864-11	METAL CHIP	0	5%	1/16W
R6041	1-216-821-11	METAL CHIP	1K	5%	1/16W	R7015	1-414-760-21	FERRITE	0uH (Note)		
R6042	1-216-857-11	METAL CHIP	1M	5%	1/16W	R7016	1-216-864-11	METAL CHIP	0	5%	1/16W
R6043	1-216-845-11	METAL CHIP	100K	5%	1/16W						
R6046	1-216-845-11	METAL CHIP	100K	5%	1/16W	R7017	1-216-833-11	METAL CHIP	10K	5%	1/16W
						R7018	1-216-833-11	METAL CHIP	10K	5%	1/16W
R6047	1-216-845-11	METAL CHIP	100K	5%	1/16W	R7019	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R6048	1-216-853-11	METAL CHIP	470K	5%	1/16W	R7020	1-216-809-11	METAL CHIP	100	5%	1/16W
						R7021	1-216-830-11	METAL CHIP	5.6K	5%	1/16W

Note: Ferrite beads are mounted to the location where R7009, R7010, R7013 and R7015 is printed.

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JD-002

MD-76

RP-234

Ref. No.	Part No.	Description	Remark			
< JACK >						
J201	1-565-276-31	JACK, ULTRA SMALL 1P (LANC)				
J252	1-691-737-21	JACK (SMALL TYPE) (CONTROL S)				
< RESISTOR >						
R201	1-216-797-11	METAL CHIP	10	5%	1/16W	
R251	1-216-864-11	METAL CHIP	0	5%	1/16W	
R252	1-216-864-11	METAL CHIP	0	5%	1/16W	
R253	1-216-864-11	METAL CHIP	0	5%	1/16W	
R254	1-216-864-11	METAL CHIP	0	5%	1/16W	
R255	1-216-864-11	METAL CHIP	0	5%	1/16W	
R256	1-216-864-11	METAL CHIP	0	5%	1/16W	
< SWITCH >						
S203	1-571-914-21	SWITCH, KEY BOARD (RESET)				
A-7067-229-A		MD-76 BOARD, COMPLETE				

(Ref. No.: 30,000 Series)						
*	3-057-555-01	HOLDER, LED				
*	3-066-170-01	HOLDER (A) , SENSOR				
*	3-066-171-01	HOLDER (B) , SENSOR				
	3-973-185-01	ENCODER				
< CAPACITOR >						
C001	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C002	1-104-851-11	TANTAL. CHIP	10uF	20%	10V	
< CONNECTOR >						
CN001	1-691-359-21	CONNECTOR, FFC/FPC (ZIF) 21P				
CN002	1-691-359-21	CONNECTOR, FFC/FPC (ZIF) 21P				
CN003	1-691-356-21	CONNECTOR, FFC/FPC (ZIF) 18P				
< DIODE >						
D001	8-719-988-42	DIODE GL453S (TAPE LED)				
< IC >						
IC001	8-759-510-71	IC BA10358F-E2				
IC002	8-719-052-03	ELEMENT, HOLE THS124TE85L				
IC003	8-719-052-03	ELEMENT, HOLE THS124TE85L				
IC004	8-719-082-56	PHOTO COUPLER TLP907 (LB,SONY)				
IC005	8-719-082-56	PHOTO COUPLER TLP907 (LB,SONY)				
< JUMPER RESISTOR >						
JR001	1-216-296-91	SHORT	0			
JR003	1-216-296-91	SHORT	0			
JR004	1-216-296-91	SHORT	0			
JR005	1-216-296-91	SHORT	0			
JR006	1-216-864-11	METAL CHIP	0	5%	1/16W	
< TRANSISTOR >						
Q001	8-729-907-25	PHOTO TRANISTOR			PT4850F	
Q002	8-729-907-25	PHOTO TRANISTOR			PT4850F	
< RESISTOR >						
R001	1-216-816-11	METAL CHIP	390	5%	1/16W	
R003	1-216-810-11	METAL CHIP	120	5%	1/16W	
R004	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R005	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	

Ref. No.	Part No.	Description			Remark
R006	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R007	1-216-809-11	METAL CHIP	100	5%	1/16W
R008	1-216-837-11	METAL CHIP	22K	5%	1/16W
R009	1-216-837-11	METAL CHIP	22K	5%	1/16W
R010	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R011	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R012	1-216-174-00	RES-CHIP	100	5%	1/8W
R013	1-216-837-11	METAL CHIP	22K	5%	1/16W
R014	1-216-180-00	RES-CHIP	180	5%	1/8W
R015	1-216-816-11	METAL CHIP	390	5%	1/16W
R028	1-216-809-11	METAL CHIP	100	5%	1/16W
R029	1-216-809-11	METAL CHIP	100	5%	1/16W
R030	1-216-864-11	METAL CHIP	0	5%	1/16W
R031	1-216-864-11	METAL CHIP	0	5%	1/16W
R032	1-216-864-11	METAL CHIP	0	5%	1/16W
R033	1-216-864-11	METAL CHIP	0	5%	1/16W
< VARIABLE RESISTOR >					
RV001	1-241-770-11	RES, ADJ, CARBON 1M (GAIN)			
RV002	1-238-019-11	RES, ADJ, CARBON 47K (OFFSET)			
RV003	1-241-770-11	RES, ADJ, CARBON 1M (GAIN)			
RV004	1-238-019-11	RES, ADJ, CARBON 47K (OFFSET)			
< SWITCH >					
S001	1-762-551-21	SWITCH, PUSH (L/S CAS)			
S002	1-771-604-11	SWITCH, DETECTION (C IN)			
S003	1-771-604-11	SWITCH, DETECTION (CC DOWN)			
A-7067-275-A		RP-234 BOARD, COMPLETE			

(Ref. No.: 30,000 Series)					
3-732-817-01	SCREW (2X4.5), TAPPING				
< CAPACITOR >					
C101	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C102	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C103	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C104	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C105	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C106	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C107	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C108	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C109	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C110	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C111	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C199	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C200	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C201	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C202	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C204	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C205	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C206	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C207	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C208	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C209	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C210	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C211	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C212	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C213	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V

Ref. No.	Part No.	Description	Remark			
C214	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C215	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C216	1-162-962-11	CERAMIC CHIP	470PF	10%	50V	
C217	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C218	1-104-851-11	TANTAL. CHIP	10uF	20%	10V	
C219	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V	
C220	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V	
C221	1-164-173-11	CERAMIC CHIP	0.0039uF	10%	50V	
C222	1-164-173-11	CERAMIC CHIP	0.0039uF	10%	50V	
C223	1-164-174-11	CERAMIC CHIP	0.0082uF	10%	25V	
C224	1-164-174-11	CERAMIC CHIP	0.0082uF	10%	25V	
C301	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C302	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C303	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C304	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C308	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C309	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	
C310	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C314	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C315	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C333	1-104-912-11	TANTAL. CHIP	3.3uF	20%	4V	
C334	1-216-864-11	METAL CHIP	0	5%	1/16W	(Note)
< CONNECTOR >						
CN101	1-691-374-11	CONNECTOR, FFC/FPC 10P				
CN201	1-750-303-41	CONNECTOR, BOARD TO BOARD 20P				
* CN202	1-750-343-11	CONNECTOR, FFC/EPC (ZIF) 22P				
* CN203	1-750-343-11	CONNECTOR, FFC/EPC (ZIF) 22P				
< IC >						
IC101	8-752-086-53	IC CXA2072R-T4				
IC102	8-759-512-69	IC S-81350HG-KD-T1				
IC201	8-752-086-52	IC CXA2071R-T4				
IC301	8-759-584-35	IC F712504DPM-TEB				
< COIL >						
L102	1-414-754-11	INDUCTOR	10uH			
L201	1-414-754-11	INDUCTOR	10uH			
L202	1-414-754-11	INDUCTOR	10uH			
< TRANSISTOR >						
Q201	8-729-042-26	TRANSISTOR	2SB1462J-QR (K8).SO			
Q202	8-729-013-04	TRANSISTOR	2SC4851-TL			
Q203	8-729-013-04	TRANSISTOR	2SC4851-TL			
< RESISTOR >						
R101	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R102	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R103	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R104	1-218-878-11	METAL CHIP	20K	0.5%	1/16W	
R105	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R106	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R107	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R108	1-218-831-11	METAL CHIP	220	0.5%	1/16W	
R109	1-218-831-11	METAL CHIP	220	0.5%	1/16W	
R110	1-218-831-11	METAL CHIP	220	0.5%	1/16W	
R111	1-218-831-11	METAL CHIP	220	0.5%	1/16W	

Ref. No.	Part No.	Description	Remark			
R112	1-218-831-11	METAL CHIP	220	0.5%	1/16W	
R113	1-218-831-11	METAL CHIP	220	0.5%	1/16W	
R115	1-218-863-11	METAL CHIP	4.7K	0.5%	1/16W	
R201	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R202	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R203	1-216-847-11	METAL CHIP	150K	5%	1/16W	
R204	1-216-817-11	METAL CHIP	470	5%	1/16W	
R206	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R207	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R208	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R209	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R210	1-216-807-11	METAL CHIP	68	5%	1/16W	
R211	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R212	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R213	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R214	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R215	1-216-810-11	METAL CHIP	120	5%	1/16W	
R216	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R217	1-216-809-11	METAL CHIP	100	5%	1/16W	
R218	1-216-809-11	METAL CHIP	100	5%	1/16W	
R219	1-216-864-11	METAL CHIP	0	5%	1/16W	
R220	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R309	1-216-799-11	METAL CHIP	15	5%	1/16W	
R338	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R339	1-216-864-11	METAL CHIP	0	5%	1/16W	
R340	1-216-864-11	METAL CHIP	0	5%	1/16W	
R341	1-216-864-11	METAL CHIP	0	5%	1/16W	
R347	1-216-864-11	METAL CHIP	0	5%	1/16W	
R349	1-216-833-11	METAL CHIP	10K	5%	1/16W	

A-7074-640-A VD-031 BOARD, COMPLETE

(Ref. No.: 50,000 Series)

< CAPACITOR >

C001	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C002	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C003	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	
C004	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C010	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C011	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C100	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C101	1-162-919-11	CERAMIC CHIP	22PF	5%	50V	
C102	1-124-778-00	ELECT CHIP	22uF	20%	6.3V	
C103	1-124-778-00	ELECT CHIP	22uF	20%	6.3V	
C104	1-162-928-11	CERAMIC CHIP	120PF	5%	50V	
C105	1-124-778-00	ELECT CHIP	22uF	20%	6.3V	
C107	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	
C109	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C110	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C113	1-124-778-00	ELECT CHIP	22uF	20%	6.3V	
C114	1-162-958-11	CERAMIC CHIP	270PF	5%	50V	
C115	1-124-778-00	ELECT CHIP	22uF	20%	6.3V	
C116	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C117	1-162-923-11	CERAMIC CHIP	47PF	5%	50V	
C118	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C119	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C122	1-126-607-11	ELECT CHIP	47uF	20%	4V	

Note: Resistor is mounted to the location where C334 is printed.

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
C124	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C310	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C125	1-126-607-11	ELECT CHIP	47uF	20%	4V	C311	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C127	1-164-156-11	CERAMIC CHIP	0.1uF		25V	C313	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C128	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	C319	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C131	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C321	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C139	1-126-607-11	ELECT CHIP	47uF	20%	4V	C323	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C140	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	C324	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C141	1-162-919-11	CERAMIC CHIP	22PF	5%	50V	C325	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C143	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C326	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C144	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C327	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C146	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C328	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C147	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C329	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C148	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C500	1-126-396-11	ELECT CHIP	47uF	20%	16V
C149	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V	C501	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C150	1-124-778-00	ELECT CHIP	22uF	20%	6.3V	C502	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C151	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C503	1-124-779-00	ELECT CHIP	10uF	20%	16V
C152	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C504	1-124-779-00	ELECT CHIP	10uF	20%	16V
C153	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C505	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C154	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V	C506	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C155	1-126-601-11	ELECT CHIP	2.2uF	20%	50V	C507	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C156	1-126-206-11	ELECT CHIP	100uF	20%	6.3V	C508	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C157	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V	C509	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C158	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C510	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C159	1-126-603-11	ELECT CHIP	4.7uF	20%	35V	C511	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C161	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C512	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C162	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V	C513	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C163	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C514	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C164	1-164-156-11	CERAMIC CHIP	0.1uF		25V	C515	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C165	1-126-607-11	ELECT CHIP	47uF	20%	4V	C516	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C166	1-126-607-11	ELECT CHIP	47uF	20%	4V	C517	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C167	1-126-206-11	ELECT CHIP	100uF	20%	6.3V	C530	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C168	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	C531	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C169	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C532	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C172	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	C700	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C173	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	C701	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C174	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	C702	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C175	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	C703	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C176	1-164-156-11	CERAMIC CHIP	0.1uF		25V	C704	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C177	1-164-156-11	CERAMIC CHIP	0.1uF		25V	C705	1-126-603-11	ELECT CHIP	4.7uF	20%	35V
C178	1-164-156-11	CERAMIC CHIP	0.1uF		25V	C706	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C179	1-164-156-11	CERAMIC CHIP	0.1uF		25V	C707	1-162-911-11	CERAMIC CHIP	6PF	0.50PF	50V
C181	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V	C708	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C183	1-124-778-00	ELECT CHIP	22uF	20%	6.3V	C709	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C184	1-124-778-00	ELECT CHIP	22uF	20%	6.3V	C710	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C185	1-164-156-11	CERAMIC CHIP	0.1uF		25V	C711	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C186	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C712	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C187	1-164-739-11	CERAMIC CHIP	560PF	5%	50V	C713	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C188	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V	C717	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C189	1-164-156-11	CERAMIC CHIP	0.1uF		25V	C718	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C190	1-164-156-11	CERAMIC CHIP	0.1uF		25V	C719	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C191	1-164-156-11	CERAMIC CHIP	0.1uF		25V	C720	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C300	1-164-156-11	CERAMIC CHIP	0.1uF		25V	C721	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C301	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	C722	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C302	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	C723	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C303	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C724	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C304	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	C725	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C305	1-117-720-11	CERAMIC CHIP	4.7uF		10V	C726	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C306	1-117-720-11	CERAMIC CHIP	4.7uF		10V	C727	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C307	1-117-720-11	CERAMIC CHIP	4.7uF		10V	C728	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C309	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	C730	1-124-778-00	ELECT CHIP	22uF	20%	6.3V

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C732	1-162-915-11	CERAMIC CHIP 10PF 0.5PF 50V		IC701	8-752-372-78	IC CXD2024AQ-TL	
C733	1-124-778-00	ELECT CHIP 22uF 20% 6.3V				< COIL >	
C734	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V		L001	1-414-398-11	INDUCTOR 10uH	
		< CONNECTOR >		L002	1-414-398-11	INDUCTOR 10uH	
CN002	1-774-666-11	CONNECTOR, FFC/FPC 30P		L102	1-414-398-11	INDUCTOR 10uH	
CN003	1-770-705-11	CONNECTOR, FFC/FPC 22P		L103	1-414-398-11	INDUCTOR 10uH	
* CN004	1-580-756-21	PIN, CONNECTOR (SMD) 7P		L104	1-410-381-11	INDUCTOR CHIP 10uH	
* CN501	1-691-551-11	PIN, CONNECTOR (SMD) 8P		L105	1-414-398-11	INDUCTOR 10uH	
CN602	1-774-863-11	PIN, CONNECTOR (PC BOARD) 8P		L106	1-412-282-41	INDUCTOR 470uH	
CN603	1-778-795-21	PIN, CONNECTOR (PC BOARD) 9P		L108	1-414-398-11	INDUCTOR 10uH	
		< TRIMMER >		L109	1-414-398-11	INDUCTOR 10uH	
CT101	1-141-450-21	CAP, ADJ 50PF (DECODER FREE RUN (NTSC))		L110	1-414-398-11	INDUCTOR 10uH	
CT102	1-141-450-21	CAP, ADJ 50PF (RECODER FREE RUN (PAL))		L111	1-414-398-11	INDUCTOR 10uH	
		< DIODE >		L112	1-414-398-11	INDUCTOR 10uH	
D101	8-719-988-61	DIODE 1SS355TE-17		L300	1-414-398-11	INDUCTOR 10uH	
D102	8-719-988-61	DIODE 1SS355TE-17		L302	1-414-398-11	INDUCTOR 10uH	
D103	8-719-988-61	DIODE 1SS355TE-17		L700	1-410-381-11	INDUCTOR CHIP 10uH	
D500	8-719-067-56	DIODE MA112-TX		L701	1-414-398-11	INDUCTOR 10uH	
D501	8-719-067-56	DIODE MA112-TX		L702	1-412-029-11	INDUCTOR CHIP 10uH	
D502	8-719-067-56	DIODE MA112-TX		L707	1-414-398-11	INDUCTOR 10uH	
D503	8-719-067-56	DIODE MA112-TX		L708	1-414-398-11	INDUCTOR 10uH	
		< DELAY LINE >		L710	1-414-398-11	INDUCTOR 10uH	
DL101	1-411-661-11	LINE, LC DELAY				< TRANSISTOR >	
		< FERRITE BEAD >		Q001	8-729-421-22	TRANSISTOR UN2211-TX	
FB300	1-414-445-11	FERRITE 0uH		Q004	8-729-421-22	TRANSISTOR UN2211-TX	
FB301	1-414-445-11	FERRITE 0uH		Q005	8-729-421-22	TRANSISTOR UN2211-TX	
FB302	1-414-445-11	FERRITE 0uH		Q100	8-729-905-35	TRANSISTOR 2SC4081T106R	
FB303	1-414-445-11	FERRITE 0uH		Q101	8-729-905-35	TRANSISTOR 2SC4081T106R	
FB304	1-414-445-11	FERRITE 0uH		Q102	8-729-905-35	TRANSISTOR 2SC4081T106R	
FB305	1-414-445-11	FERRITE 0uH		Q103	8-729-905-35	TRANSISTOR 2SC4081T106R	
		< FILTER >		Q104	8-729-905-35	TRANSISTOR 2SC4081T106R	
FL101	1-233-345-21	FILTER, LOW PASS (5.5MHz)		Q105	8-729-905-35	TRANSISTOR 2SC4081T106R	
FL102	1-233-345-21	FILTER, LOW PASS (5.5MHz)		Q106	8-729-905-35	TRANSISTOR 2SC4081T106R	
FL103	1-233-501-11	FILTER, LOW PASS		Q107	8-729-026-52	TRANSISTOR 2SA1576A-T106-R	
FL104	1-233-500-11	FILTER, LOW PASS		Q108	8-729-905-35	TRANSISTOR 2SC4081T106R	
FL105	1-233-501-11	FILTER, LOW PASS		Q109	8-729-905-35	TRANSISTOR 2SC4081T106R	
		< IC >		Q110	8-729-026-52	TRANSISTOR 2SA1576A-T106-R	
IC001	8-759-157-22	IC PQ05TZ1U		Q111	8-729-905-35	TRANSISTOR 2SC4081T106R	
IC002	8-759-287-55	IC TC7S66FU (TE85R)		Q112	8-729-026-52	TRANSISTOR 2SA1576A-T106-R	
IC100	8-759-528-99	IC TC74VHC221AFT (EL)		Q113	8-729-026-52	TRANSISTOR 2SA1576A-T106-R	
IC101	8-759-058-54	IC TC7S00FU (TE85R)		Q114	8-729-421-22	TRANSISTOR UN2211-TX	
IC102	8-759-432-78	IC MM1111XFBE		Q115	8-729-905-35	TRANSISTOR 2SC4081T106R	
IC103	8-759-432-78	IC MM1111XFBE		Q116	8-729-905-35	TRANSISTOR 2SC4081T106R	
IC106	8-759-603-54	IC M51271FP-70AD		Q117	8-729-905-35	TRANSISTOR 2SC4081T106R	
IC107	8-759-432-78	IC MM1111XFBE		Q118	8-729-905-35	TRANSISTOR 2SC4081T106R	
IC110	8-759-488-29	IC TC7W66FU (TE12R)		Q119	8-729-905-35	TRANSISTOR 2SC4081T106R	
IC300	8-752-052-73	IC CXA1451M-T4		Q120	8-729-905-35	TRANSISTOR 2SC4081T106R	
IC301	8-752-052-73	IC CXA1451M-T4		Q121	8-729-905-35	TRANSISTOR 2SC4081T106R	
IC304	8-752-052-73	IC CXA1451M-T4		Q122	8-729-905-35	TRANSISTOR 2SC4081T106R	
IC501	8-759-745-64	IC NJM4560M-TE2		Q123	8-729-424-08	TRANSISTOR UN2111-TX	
IC502	8-759-745-64	IC NJM4560M-TE2		Q124	8-729-905-35	TRANSISTOR 2SC4081T106R	
IC700	8-759-711-62	IC NJM2240M (TE2)		Q125	8-729-905-35	TRANSISTOR 2SC4081T106R	
				Q126	8-729-905-35	TRANSISTOR 2SC4081T106R	
				Q127	8-729-905-35	TRANSISTOR 2SC4081T106R	
				Q128	8-729-421-22	TRANSISTOR UN2211-TX	
				Q129	8-729-424-08	TRANSISTOR UN2111-TX	
				Q130	8-729-421-22	TRANSISTOR UN2211-TX	
				Q302	8-729-905-35	TRANSISTOR 2SC4081T106R	

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description			Remark
Q308	8-729-421-22	TRANSISTOR	UN2211-TX			R131	1-216-833-11	METAL CHIP	10K	5%	1/16W
Q500	8-729-026-52	TRANSISTOR	2SA1576A-T106-R			R132	1-216-809-11	METAL CHIP	100	5%	1/16W
Q501	8-729-202-38	TRANSISTOR	2SC3326N-TE85L-AB			R133	1-216-821-11	METAL CHIP	1K	5%	1/16W
Q502	8-729-202-38	TRANSISTOR	2SC3326N-TE85L-AB			R135	1-216-840-11	METAL CHIP	39K	5%	1/16W
Q504	8-729-905-35	TRANSISTOR	2SC4081T106R			R136	1-216-821-11	METAL CHIP	1K	5%	1/16W
						R137	1-216-821-11	METAL CHIP	1K	5%	1/16W
Q700	8-729-905-35	TRANSISTOR	2SC4081T106R			R138	1-216-805-11	METAL CHIP	47	5%	1/16W
Q701	8-729-905-35	TRANSISTOR	2SC4081T106R			R139	1-216-821-11	METAL CHIP	1K	5%	1/16W
Q706	8-729-216-21	TRANSISTOR	2SA1162Y-TE85L			R140	1-218-831-11	METAL CHIP	220	0.5%	1/16W
Q707	8-729-230-49	TRANSISTOR	2SC2712Y-TE85L			R141	1-216-821-11	METAL CHIP	1K	5%	1/16W
Q708	8-729-230-49	TRANSISTOR	2SC2712Y-TE85L			R143	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
Q710	8-729-230-49	TRANSISTOR	2SC2712Y-TE85L			R144	1-216-818-11	METAL CHIP	560	5%	1/16W
Q712	8-729-216-21	TRANSISTOR	2SA1162Y-TE85L			R145	1-216-821-11	METAL CHIP	1K	5%	1/16W
Q713	8-729-230-49	TRANSISTOR	2SC2712Y-TE85L			R146	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
Q714	8-729-905-35	TRANSISTOR	2SC4081T106R			R147	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
		< RESISTOR >				R148	1-216-809-11	METAL CHIP	100	5%	1/16W
R002	1-216-295-11	SHORT	0			R149	1-216-809-11	METAL CHIP	100	5%	1/16W
R003	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R150	1-216-821-11	METAL CHIP	1K	5%	1/16W
R048	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R151	1-216-818-11	METAL CHIP	560	5%	1/16W
R049	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R152	1-216-864-11	METAL CHIP	0	5%	1/16W
R050	1-216-797-11	METAL CHIP	10	5%	1/16W	R153	1-216-833-11	METAL CHIP	10K	5%	1/16W
R051	1-216-797-11	METAL CHIP	10	5%	1/16W	R154	1-216-820-11	METAL CHIP	820	5%	1/16W
R052	1-216-797-11	METAL CHIP	10	5%	1/16W	R155	1-216-809-11	METAL CHIP	100	5%	1/16W
R053	1-216-797-11	METAL CHIP	10	5%	1/16W	R156	1-216-809-11	METAL CHIP	100	5%	1/16W
R054	1-216-797-11	METAL CHIP	10	5%	1/16W	R157	1-216-821-11	METAL CHIP	1K	5%	1/16W
R055	1-216-797-11	METAL CHIP	10	5%	1/16W	R158	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R056	1-216-797-11	METAL CHIP	10	5%	1/16W	R159	1-216-821-11	METAL CHIP	1K	5%	1/16W
R057	1-216-797-11	METAL CHIP	10	5%	1/16W	R160	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R058	1-216-797-11	METAL CHIP	10	5%	1/16W	R161	1-216-809-11	METAL CHIP	100	5%	1/16W
R059	1-216-797-11	METAL CHIP	10	5%	1/16W	R162	1-216-819-11	METAL CHIP	680	5%	1/16W
R060	1-216-797-11	METAL CHIP	10	5%	1/16W	R163	1-216-821-11	METAL CHIP	1K	5%	1/16W
R102	1-216-837-11	METAL CHIP	22K	5%	1/16W	R164	1-216-805-11	METAL CHIP	47	5%	1/16W
R103	1-216-839-11	METAL CHIP	33K	5%	1/16W	R165	1-216-821-11	METAL CHIP	1K	5%	1/16W
R104	1-216-821-11	METAL CHIP	1K	5%	1/16W	R166	1-216-864-11	METAL CHIP	0	5%	1/16W
R105	1-216-810-11	METAL CHIP	120	5%	1/16W	R167	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R106	1-216-821-11	METAL CHIP	1K	5%	1/16W	R169	1-216-839-11	METAL CHIP	33K	5%	1/16W
R107	1-216-821-11	METAL CHIP	1K	5%	1/16W	R170	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R108	1-216-837-11	METAL CHIP	22K	5%	1/16W	R171	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R109	1-216-833-11	METAL CHIP	10K	5%	1/16W	R173	1-216-837-11	METAL CHIP	22K	5%	1/16W
R110	1-216-837-11	METAL CHIP	22K	5%	1/16W	R174	1-216-818-11	METAL CHIP	560	5%	1/16W
R111	1-216-833-11	METAL CHIP	10K	5%	1/16W	R176	1-216-844-11	METAL CHIP	82K	5%	1/16W
R112	1-216-864-11	METAL CHIP	0	5%	1/16W	R177	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R113	1-218-855-11	METAL CHIP	2.2K	0.5%	1/16W	R178	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R114	1-216-821-11	METAL CHIP	1K	5%	1/16W	R179	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R115	1-218-855-11	METAL CHIP	2.2K	0.5%	1/16W	R180	1-216-833-11	METAL CHIP	10K	5%	1/16W
R116	1-216-821-11	METAL CHIP	1K	5%	1/16W	R181	1-216-819-11	METAL CHIP	680	5%	1/16W
R117	1-216-821-11	METAL CHIP	1K	5%	1/16W	R182	1-216-864-11	METAL CHIP	0	5%	1/16W
R118	1-218-847-11	METAL CHIP	1K	0.5%	1/16W	R183	1-216-853-11	METAL CHIP	470K	5%	1/16W
R119	1-218-847-11	METAL CHIP	1K	0.5%	1/16W	R184	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R120	1-216-837-11	METAL CHIP	22K	5%	1/16W	R185	1-216-805-11	METAL CHIP	47	5%	1/16W
R121	1-216-834-11	METAL CHIP	12K	5%	1/16W	R186	1-216-815-11	METAL CHIP	330	5%	1/16W
R122	1-216-821-11	METAL CHIP	1K	5%	1/16W	R187	1-216-818-11	METAL CHIP	560	5%	1/16W
R123	1-216-817-11	METAL CHIP	470	5%	1/16W	R188	1-216-819-11	METAL CHIP	680	5%	1/16W
R124	1-216-816-11	METAL CHIP	390	5%	1/16W	R189	1-216-839-11	METAL CHIP	33K	5%	1/16W
R125	1-216-818-11	METAL CHIP	560	5%	1/16W	R190	1-216-833-11	METAL CHIP	10K	5%	1/16W
R126	1-216-821-11	METAL CHIP	1K	5%	1/16W	R191	1-216-833-11	METAL CHIP	10K	5%	1/16W
R127	1-216-807-11	METAL CHIP	68	5%	1/16W	R192	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R128	1-216-837-11	METAL CHIP	22K	5%	1/16W	R193	1-216-864-11	METAL CHIP	0	5%	1/16W
R129	1-216-833-11	METAL CHIP	10K	5%	1/16W	R194	1-216-864-11	METAL CHIP	0	5%	1/16W
R130	1-216-837-11	METAL CHIP	22K	5%	1/16W	R195	1-216-839-11	METAL CHIP	33K	5%	1/16W

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
R196	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	R703	1-216-864-11	METAL CHIP	0	5%	1/16W
R197	1-216-819-11	METAL CHIP	680	5%	1/16W	R705	1-218-847-11	METAL CHIP	1K	0.5%	1/16W
R198	1-216-820-11	METAL CHIP	820	5%	1/16W	R706	1-216-833-11	METAL CHIP	10K	5%	1/16W
R199	1-216-811-11	METAL CHIP	150	5%	1/16W	R707	1-218-836-11	METAL CHIP	360	0.5%	1/16W
R201	1-216-809-11	METAL CHIP	100	5%	1/16W	R708	1-216-833-11	METAL CHIP	10K	5%	1/16W
R202	1-216-813-11	METAL CHIP	220	5%	1/16W	R709	1-216-821-11	METAL CHIP	1K	5%	1/16W
R204	1-216-821-11	METAL CHIP	1K	5%	1/16W	R710	1-216-833-11	METAL CHIP	10K	5%	1/16W
R205	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	R711	1-216-821-11	METAL CHIP	1K	5%	1/16W
R206	1-216-821-11	METAL CHIP	1K	5%	1/16W	R719	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R207	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	R720	1-216-813-11	METAL CHIP	220	5%	1/16W
R209	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R721	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R210	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R722	1-216-813-11	METAL CHIP	220	5%	1/16W
R213	1-216-809-11	METAL CHIP	100	5%	1/16W	R725	1-216-809-11	METAL CHIP	100	5%	1/16W
R214	1-216-821-11	METAL CHIP	1K	5%	1/16W	R726	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R215	1-216-806-11	RES-CHIP	56	5%	1/16W	R727	1-216-809-11	METAL CHIP	100	5%	1/16W
R216	1-216-809-11	METAL CHIP	100	5%	1/16W	R728	1-216-817-11	METAL CHIP	470	5%	1/16W
R217	1-216-842-11	METAL CHIP	56K	5%	1/16W	R730	1-216-841-11	METAL CHIP	47K	5%	1/16W
R301	1-216-821-11	METAL CHIP	1K	5%	1/16W	R732	1-216-817-11	METAL CHIP	470	5%	1/16W
R302	1-216-821-11	METAL CHIP	1K	5%	1/16W	R733	1-216-805-11	METAL CHIP	47	5%	1/16W
R305	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	R734	1-216-809-11	METAL CHIP	100	5%	1/16W
R316	1-216-821-11	METAL CHIP	1K	5%	1/16W	R735	1-216-809-11	METAL CHIP	100	5%	1/16W
R320	1-218-827-11	METAL CHIP	150	0.5%	1/16W	R736	1-216-821-11	METAL CHIP	1K	5%	1/16W
R321	1-218-827-11	METAL CHIP	150	0.5%	1/16W	R737	1-216-809-11	METAL CHIP	100	5%	1/16W
R322	1-218-827-11	METAL CHIP	150	0.5%	1/16W	R740	1-216-821-11	METAL CHIP	1K	5%	1/16W
R323	1-218-827-11	METAL CHIP	150	0.5%	1/16W	R741	1-216-821-11	METAL CHIP	1K	5%	1/16W
R324	1-218-827-11	METAL CHIP	150	0.5%	1/16W	R742	1-216-819-11	METAL CHIP	680	5%	1/16W
R325	1-218-827-11	METAL CHIP	150	0.5%	1/16W	R743	1-216-864-11	METAL CHIP	0	5%	1/16W
R326	1-216-821-11	METAL CHIP	1K	5%	1/16W	< VARIABLE RESISTOR >					
R500	1-216-816-11	METAL CHIP	390	5%	1/16W	RV102	1-238-852-11	RES, ADJ, CERMET 470 (CR REC LEVEL)			
R501	1-216-849-11	METAL CHIP	220K	5%	1/16W	RV104	1-238-852-11	RES, ADJ, CERMET 470 (Y REC LEVEL)			
R502	1-216-849-11	METAL CHIP	220K	5%	1/16W	RV105	1-238-852-11	RES, ADJ, CERMET 470 (CB REC LEVEL)			
R503	1-216-838-11	METAL CHIP	27K	5%	1/16W	RV701	1-238-853-11	RES, ADJ, CERMET 1K (Y/C SEP. Y LEVEL)			
R504	1-216-841-11	METAL CHIP	47K	5%	1/16W	RV702	1-238-853-11	RES, ADJ, CERMET 1K (Y/C SEP. C LEVEL)			
R505	1-216-833-11	METAL CHIP	10K	5%	1/16W	< RELAY >					
R506	1-216-838-11	METAL CHIP	27K	5%	1/16W	RY101	1-755-384-21	RELAY			
R507	1-216-838-11	METAL CHIP	27K	5%	1/16W	< TEST PIN >					
R508	1-216-838-11	METAL CHIP	27K	5%	1/16W	TP101	1-535-757-11	CHIP, CHECKER			
R509	1-216-833-11	METAL CHIP	10K	5%	1/16W	< VIBRATOR >					
R510	1-216-833-11	METAL CHIP	10K	5%	1/16W	X101	1-795-085-21	VIBRATOR, CRYSTAL (14.31818MHz)			
R511	1-216-833-11	METAL CHIP	10K	5%	1/16W	X102	1-567-344-31	VIBRATOR, CRYSTAL (VCO) (17.734475MHz)			
R512	1-216-823-11	METAL CHIP	1.5K	5%	1/16W						
R513	1-216-833-11	METAL CHIP	10K	5%	1/16W						
R514	1-216-833-11	METAL CHIP	10K	5%	1/16W						
R515	1-216-864-11	METAL CHIP	0	5%	1/16W						
R516	1-216-844-11	METAL CHIP	82K	5%	1/16W						
R517	1-216-841-11	METAL CHIP	47K	5%	1/16W						
R518	1-216-833-11	METAL CHIP	10K	5%	1/16W	*****					
R519	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	HARDWARE LIST					
R520	1-216-833-11	METAL CHIP	10K	5%	1/16W	*****					
R521	1-216-841-11	METAL CHIP	47K	5%	1/16W	#1	7-685-791-09	SCREW +PTT 2.6X5 (S)			
R522	1-216-849-11	METAL CHIP	220K	5%	1/16W	#2	7-621-775-80	SCREW +P 2.6X16			
R534	1-216-813-11	METAL CHIP	220	5%	1/16W	#3	7-685-646-79	SCREW +P 3X8 TYPE2 NON-SLIT			
R535	1-216-813-11	METAL CHIP	220	5%	1/16W	#4	7-621-772-10	SCREW +B 2X4			
R539	1-216-829-11	METAL CHIP	4.7K	5%	1/16W						
R540	1-216-829-11	METAL CHIP	4.7K	5%	1/16W						
R541	1-216-816-11	METAL CHIP	390	5%	1/16W						
R542	1-216-849-11	METAL CHIP	220K	5%	1/16W						
R543	1-216-840-11	METAL CHIP	39K	5%	1/16W						
R544	1-216-833-11	METAL CHIP	10K	5%	1/16W						
R702	1-218-859-11	METAL CHIP	3.3K	0.5%	1/16W						

HARDWARE LIST

#1	7-685-791-09	SCREW +PTT 2.6X5 (S)
#2	7-621-775-80	SCREW +P 2.6X16
#3	7-685-646-79	SCREW +P 3X8 TYPE2 NON-SLIT
#4	7-621-772-10	SCREW +B 2X4

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
	ACCESSORIES & PACKING MATERIALS		

	1-476-403-11	REMOTE COMMANDER (RMT-DS11)	
⚠	1-476-404-11	ADAPTOR, AC	
	1-543-798-11	FILTER, CLAMP (FERRITE CORE)	
⚠	1-690-827-11	CORD SET, POWER (EXCEPT US, Canadian)	
⚠	1-790-107-22	CORD, POWER (US, Canadian)	
	3-065-956-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH) (US, Canadian)	
	3-065-956-21	MANUAL, INSTRUCTION (GERMAN, ITALIAN) (EXCEPT US, Canadian)	
	3-708-923-01	COVER, BATTERY (for RMT-DS11)	
	8-883-121-64	TAPE, DV CASSETTE DVM-4CLD J	
*	X-3951-285-1	STAND ASSY, HORIZONTAL PUT	

SONY®

SERVICE MANUAL

Ver 1.2 2003.04

*US Model
Canadian Model
AEP Model
UK Model
Australian Model
New Zealand Model*

SUPPLEMENT-1

File this supplement with the service manual.
(PV02-020)

- Change of a repair part

SECTION 6 REPAIR PARTS LIST

6-2. ELECTRICAL PARTS LIST

Page	FORMER			NEW		
	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
		A-7074-621-A	JC-20 BOARD, COMPLETE (SERVICE) ***** (Ref. No.: 20,000 Series)		A-7074-621-A	JC-20 BOARD, COMPLETE (SERVICE) ***** (Ref. No.: 20,000 Series)
6-19	IC5003	8-759-693-43	IC MB91192PFF-G-119-BND-ER	IC5003	6-802-635-01	IC MB91192PFF-G-160-BND-ER

Ver.	Date	History	Contents	S.M. Rev. issued
1.0	2000.10	Official Release	—	—
1.1	2001.05	Correction	S.M. correction: Page 5-6	Yes
1.2	2003.04	Supplement-1 (S1 PV02-020)	• Change of a repair part	No
1.3	2004.10	Correction-2 (C2)	• Addition of Note about Lithium Secondary Battery S.M. correction: Page 6-3	Yes